US007856932B2

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Stahl et al.

(10) **Patent No.: US 7,856,932 B2**
(45) **Date of Patent: Dec. 28, 2010**

(54) **STACKABLE PACKAGED GOODS PALLET**

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(73) Assignee: **Coca-Cola Bottling Co. United, Inc.**, Birmingham, AL (US)

(*) Notice: Subject to any disclaimer, the term of this patent is extended or adjusted under 35 U.S.C. 154(b) by 359 days.

(21) Appl. No.: **11/890,530**

(22) Filed: **Aug. 7, 2007**

(65) **Prior Publication Data**

US 2008/0149005 A1 Jun. 26, 2008

Related U.S. Application Data

(63) Continuation-in-part of application No. 11/615,635, filed on Dec. 22, 2006.

(51) **Int. Cl.**
B65D 19/38 (2006.01)

(52) **U.S. Cl.** **108/53.3**; 108/57.28

(58) **Field of Classification Search** 108/53.1, 108/53.3, 55.1, 57.25, 57.26, 57.27, 57.28, 108/57.29
See application file for complete search history.

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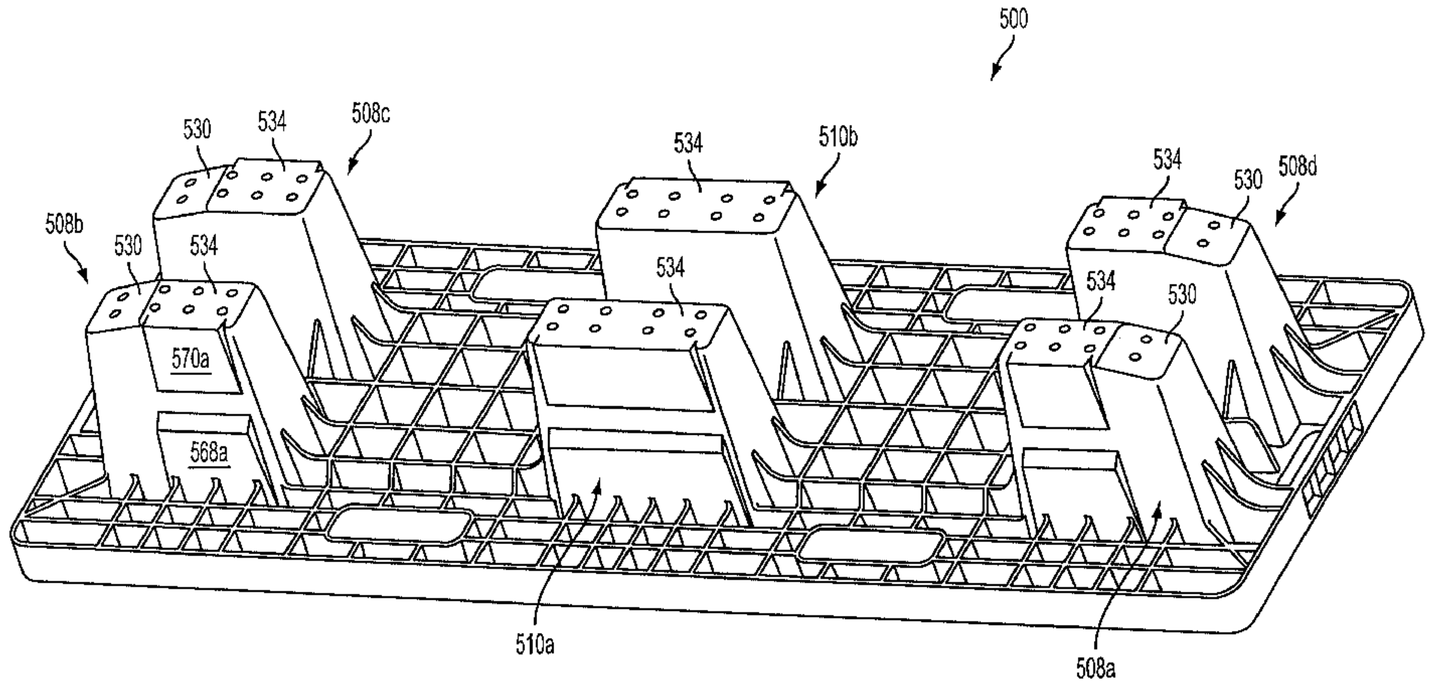
Primary Examiner—Darnell M Jayne
Assistant Examiner—Matthew W Ing
(74) *Attorney, Agent, or Firm*—Katten Muchin Rosenman LLP

(57) **ABSTRACT**

A pallet for shipping and displaying of packaged goods wherein the pallet comprises a plurality of stacking feet joined together by angled ribs to substantially prevent or inhibit spreading of the stacking feet due to high weight loads, a plurality of handles that include handle-strengthening areas and finger recesses to increase the strength and lifting ergonomics of the pallet, and an angled surface on the bottom of the stacking feet to facilitate transporting of the loaded pallet from a distribution vehicle to a retail location over certain obstacles. Accordingly, the packaged goods can comprise beverage trays filled or partially filled with beverage bottles, or any good and/or raw material for sale and/or use in manufacturing.

69 Claims, 30 Drawing Sheets



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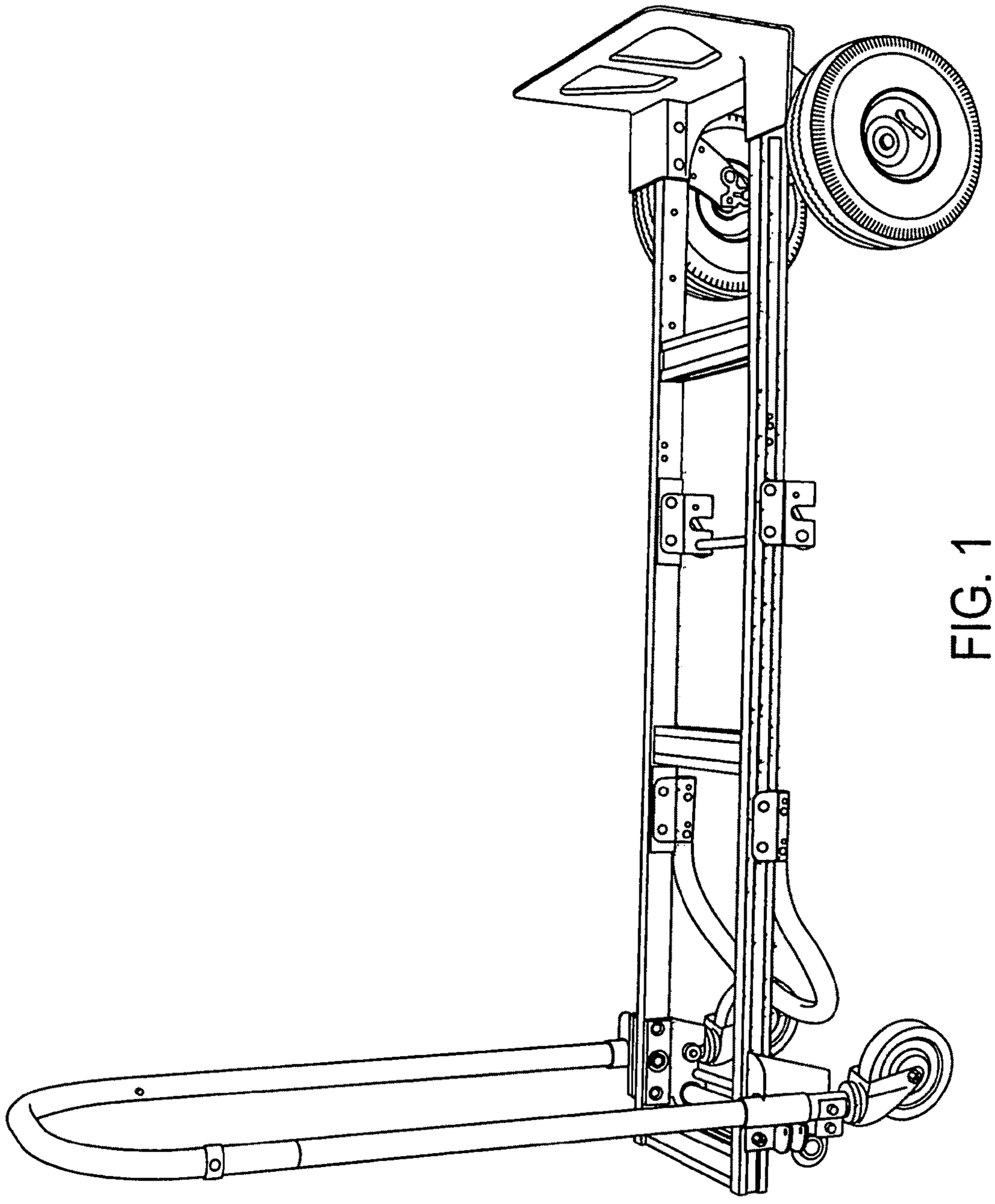


FIG. 1
PRIOR ART

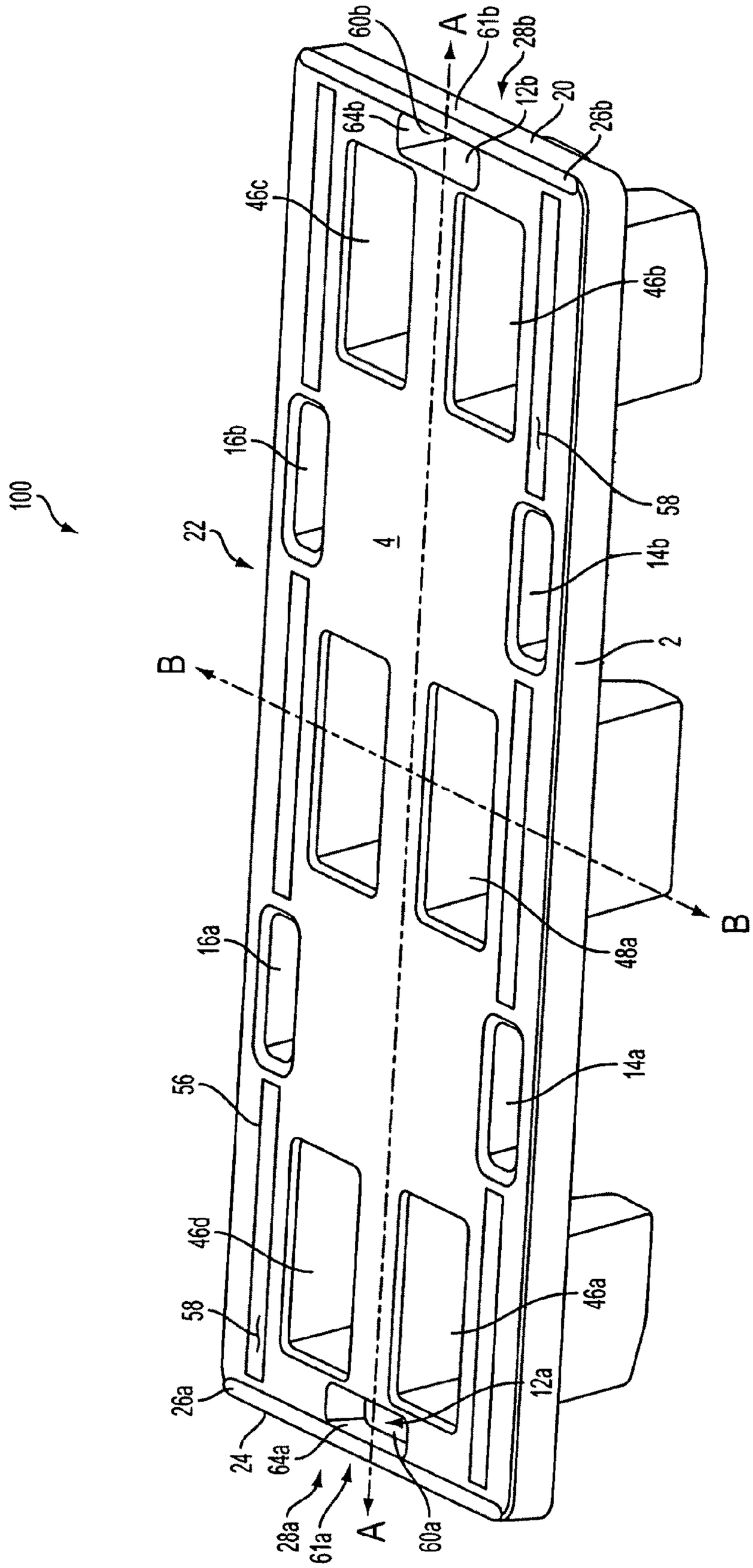

100
22
16b
16a
56
46d
58
26a
24
64a
28a
61a
A
60a
4
B
B
48a
58
14b
2
14a
46a
12a
46c
64b
60b
A
61b
28b
12b
20
26b
46b

FIG. 2

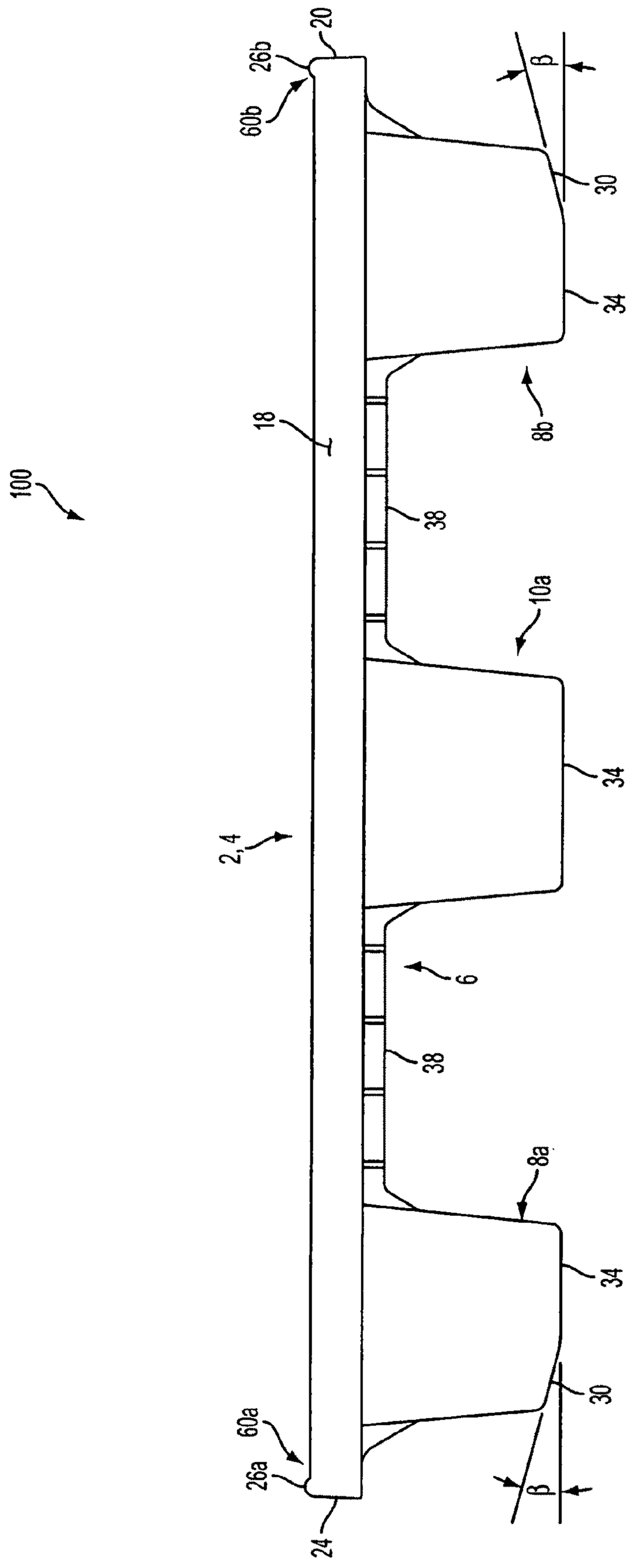


FIG. 3

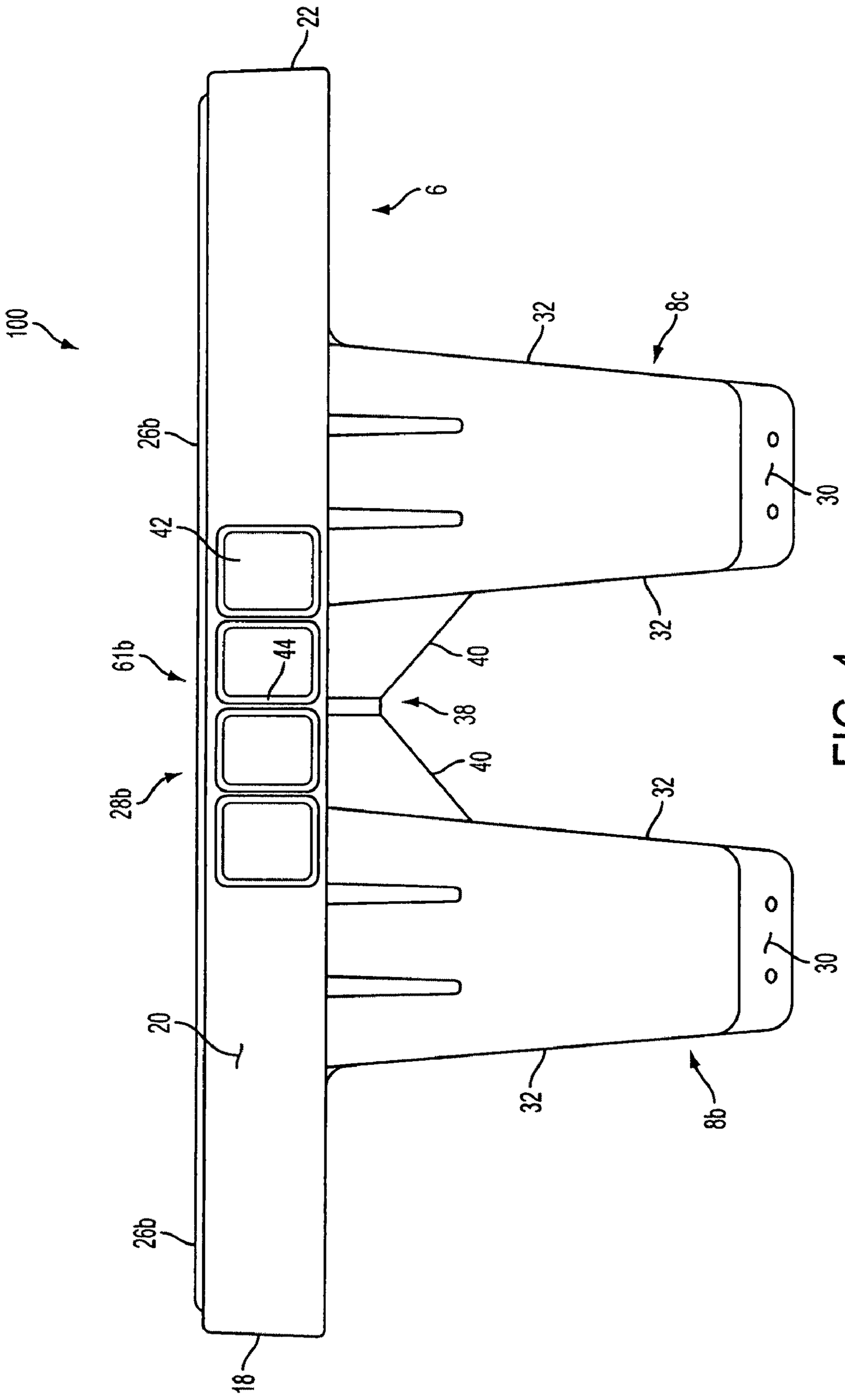
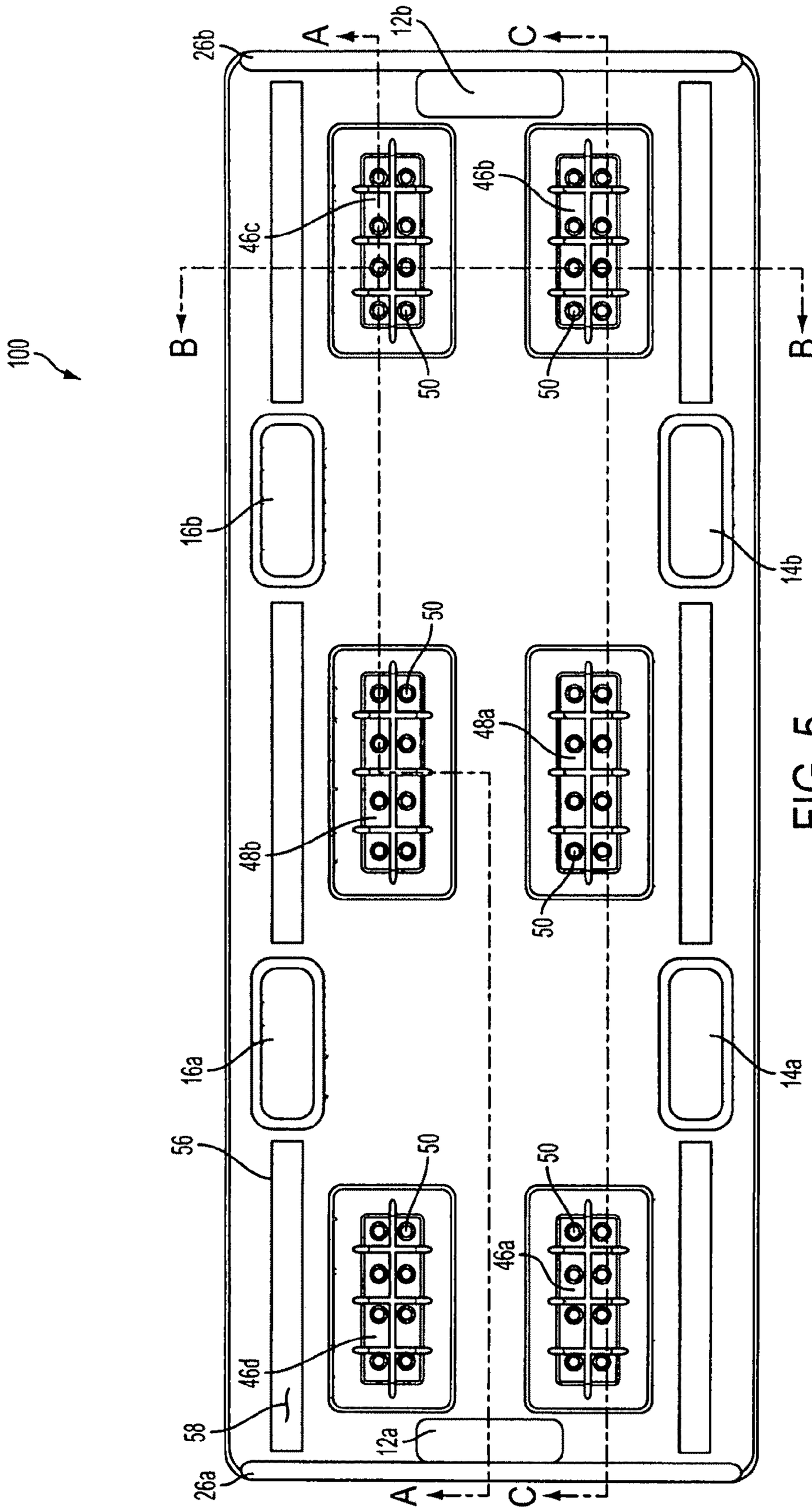


FIG. 4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26b
A
12b
C
46c
46b
B
B
50
50
16b
14b
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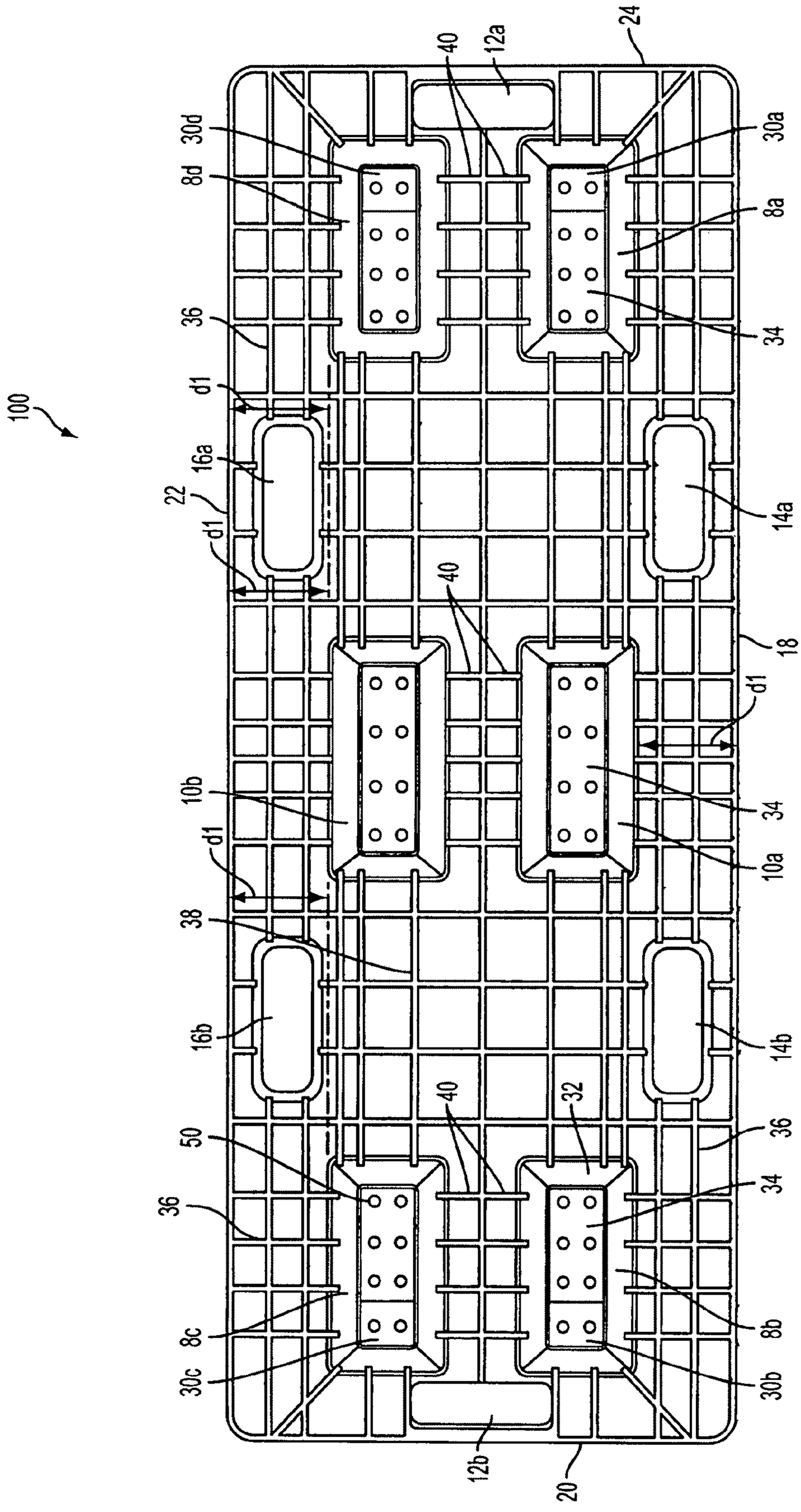
48a
48b
50
16a
14a
56
50
50
46a
46d
58
12a
26a
A
C

FIG. 5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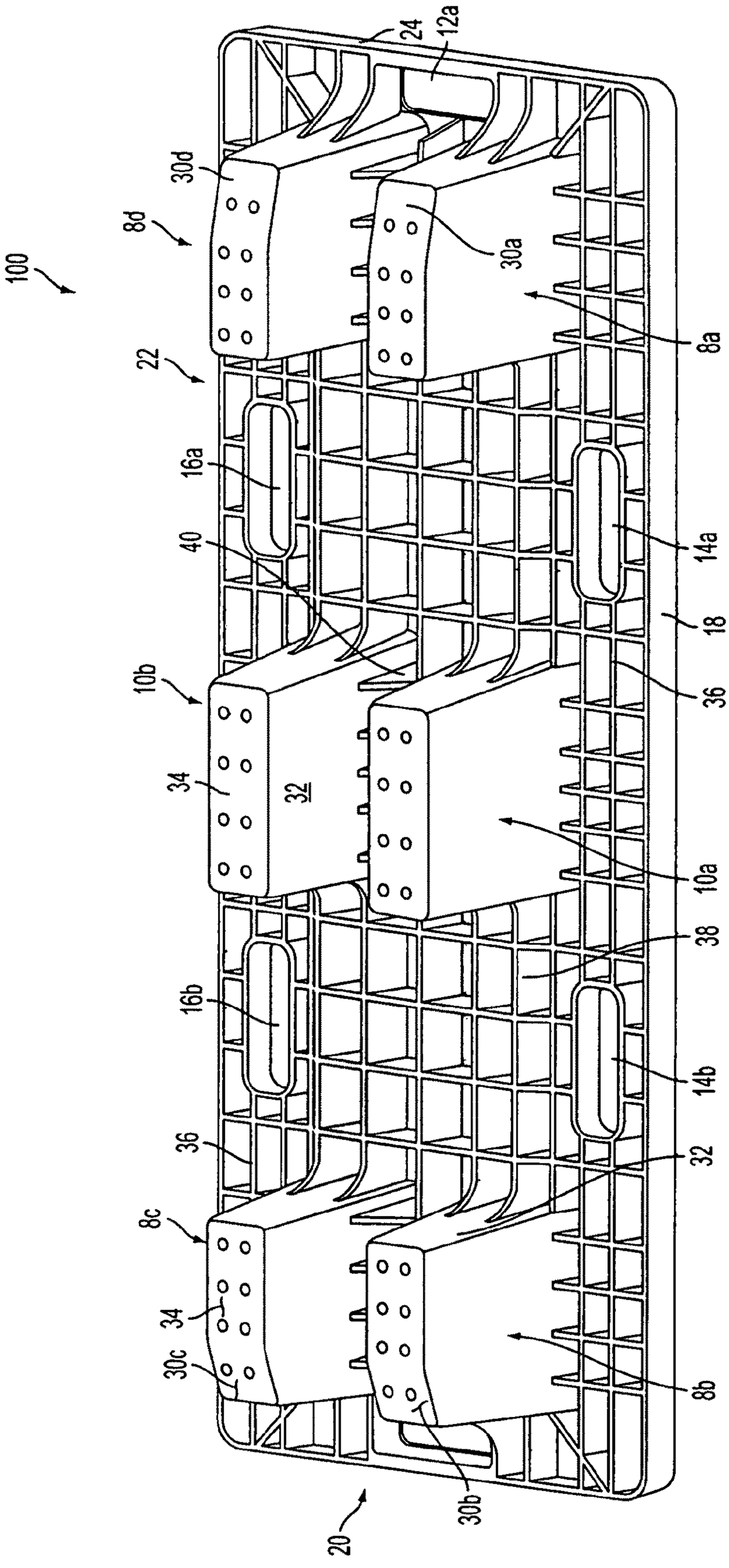
24
40
12a
30d
8d
30a
8a
36
34
d1
16a
22
14a
18
10b
10a
38
16b
14b
50
32
8c
8b
30c
30b
12b
20

FIG. 6


100
22
8d
30d
24
12a
30a
8a
16a
40
14a
18
10b
34
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36
10a
38
16b
14b
36
32
8c
34
30c
8b
30b
20

FIG. 7

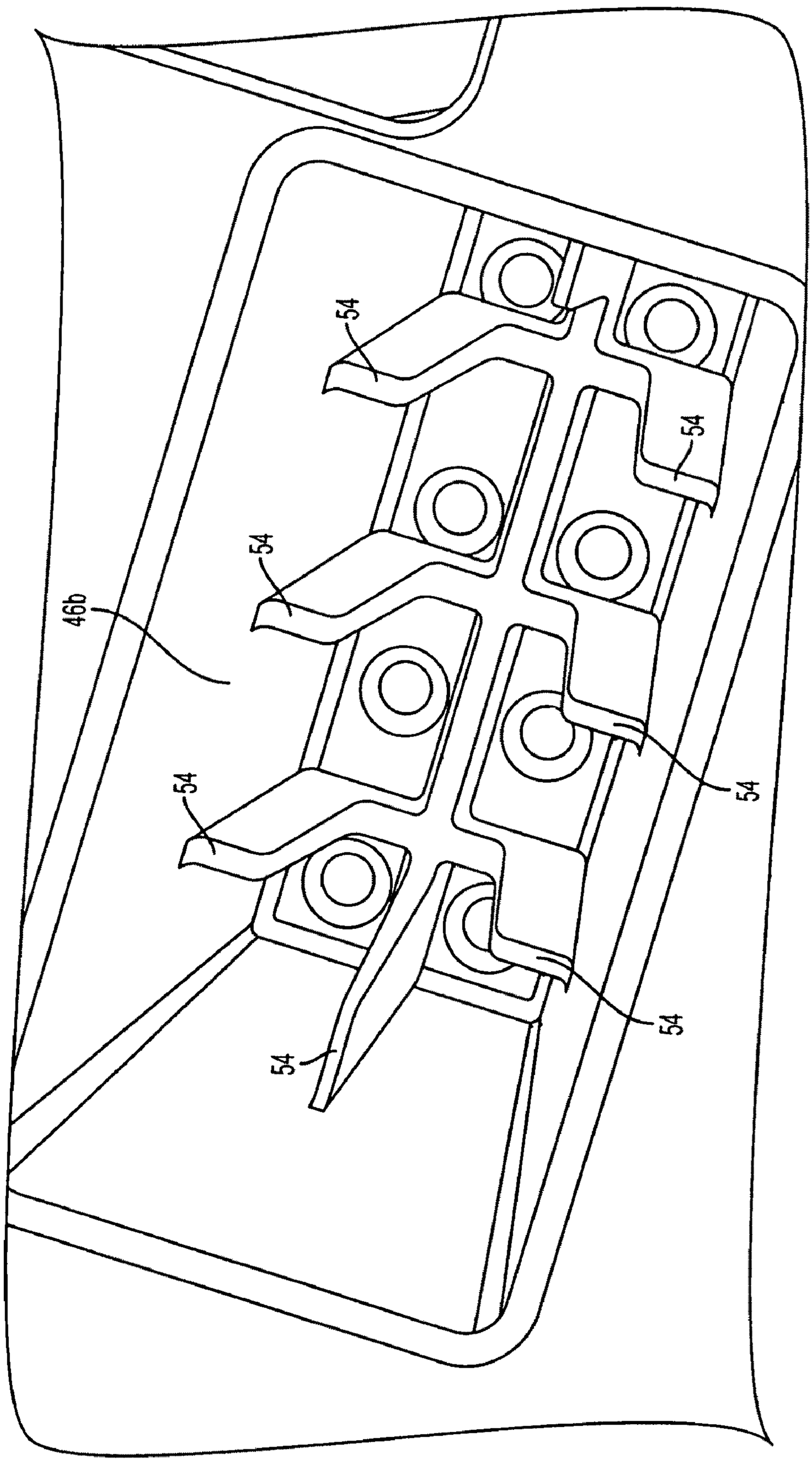
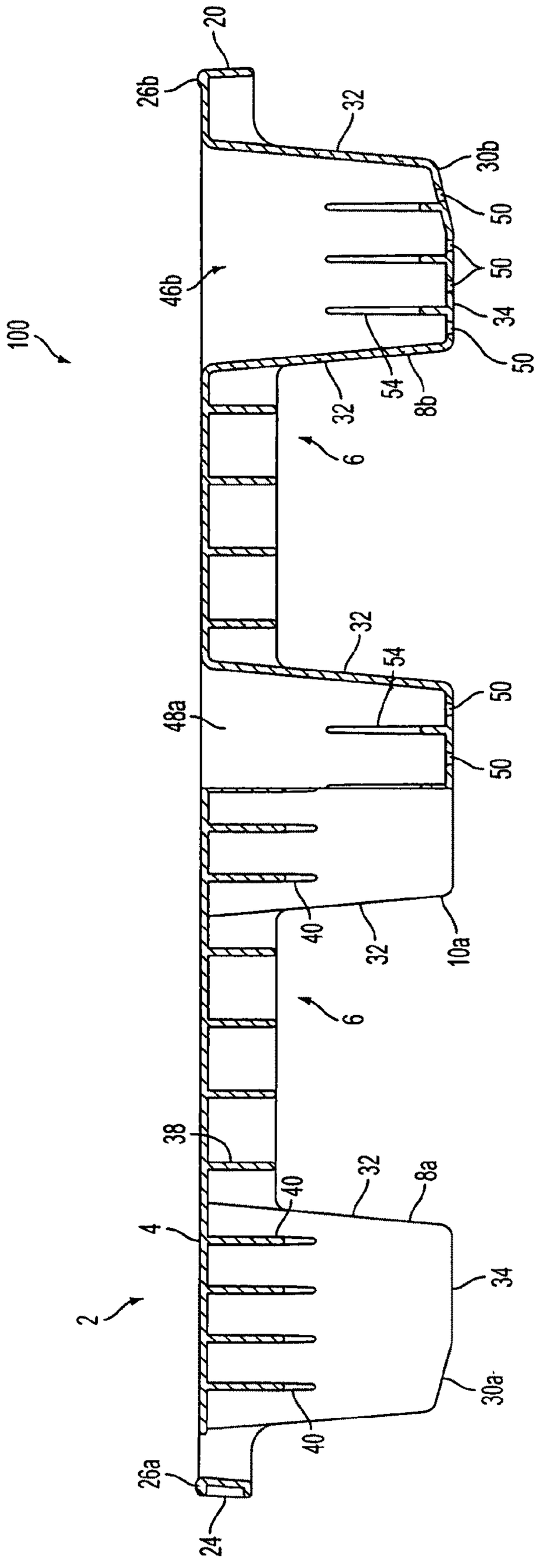


FIG. 8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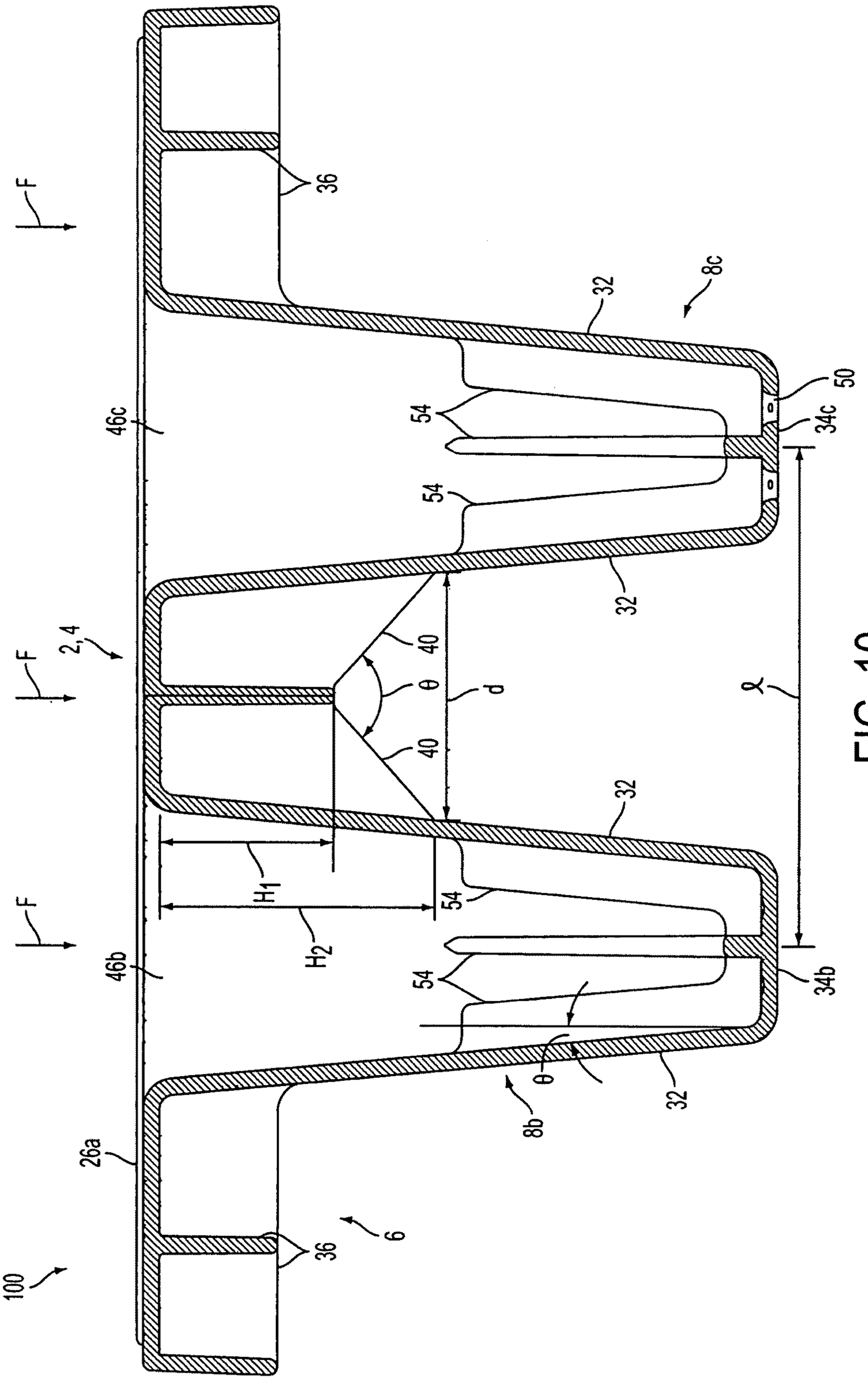
20
26b
32
30b
50
50
50
46b
34
50
54
8b
32
6
32
54
50
50
48a
40
32
10a
6
38
40
32
8a
4
34
2
30a
40
26a
24

FIG. 9



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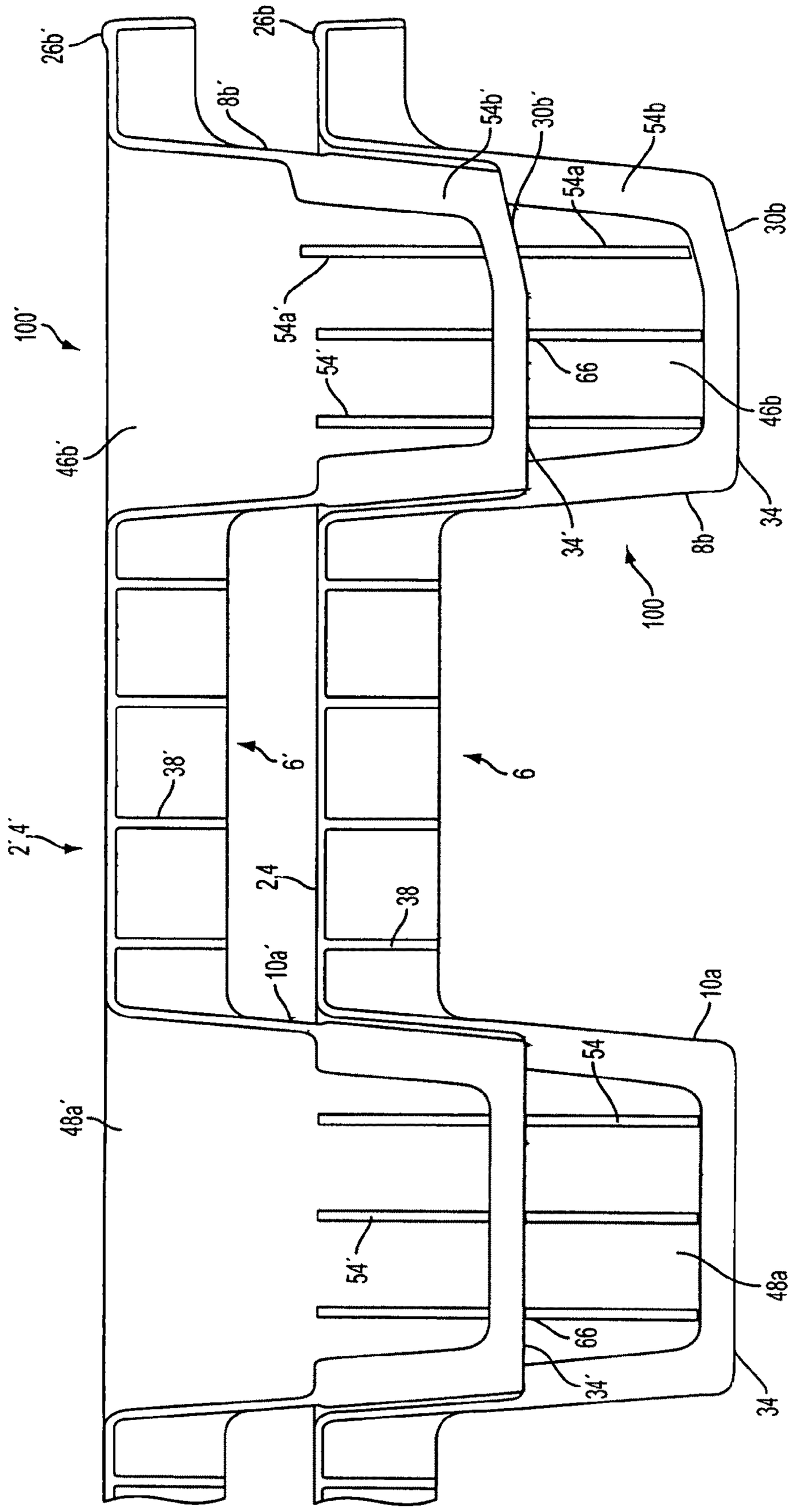
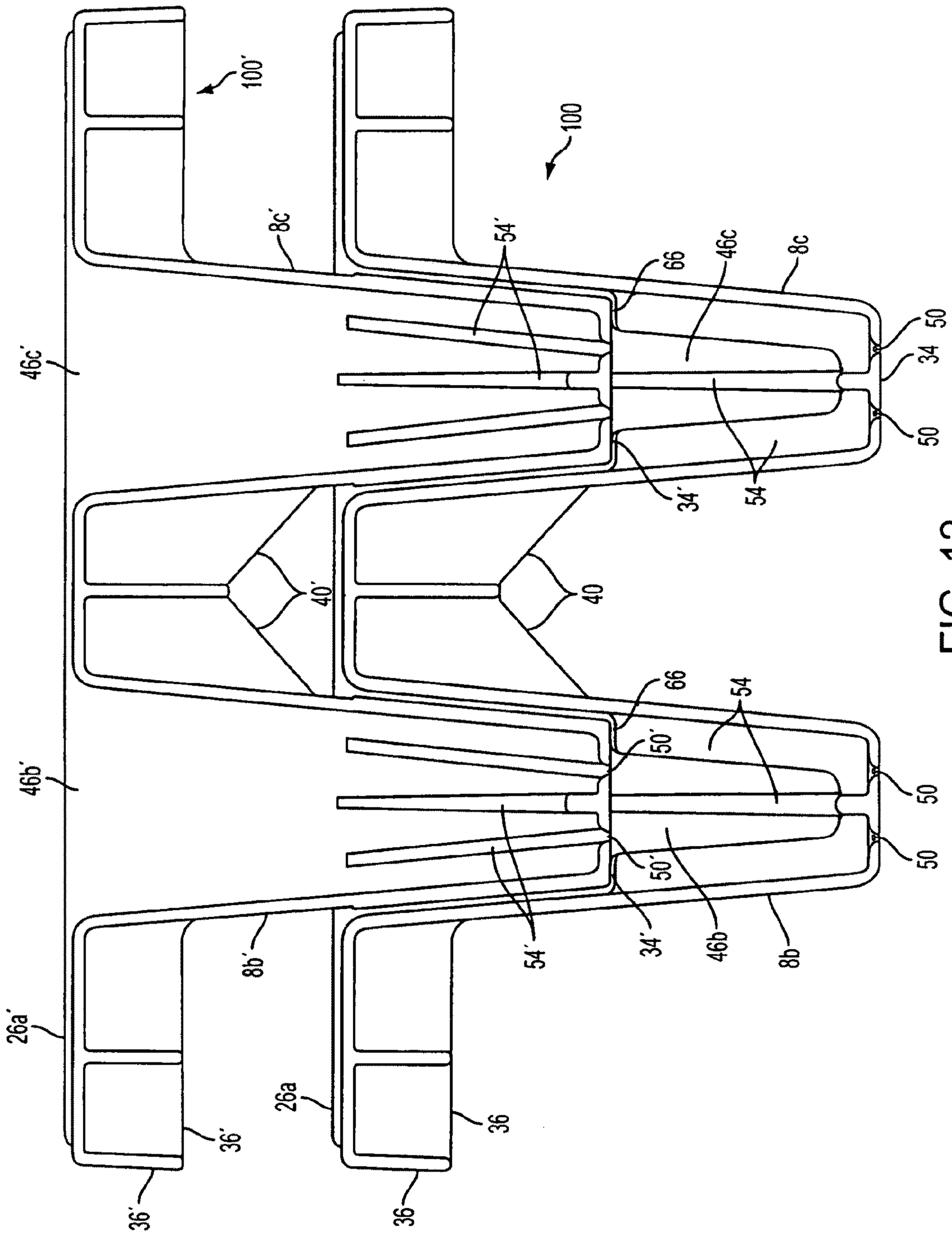

26b'
26b
8b'
54b'
30b'
54b
54a
30b
54a'
54'
66
46b
46b'
34'
8b
34
100
100'
38'
6'
6
2'4'
2,4
38
10a'
10a
54
48a'
54'
48a
66
34'
34

FIG. 11


100'
8c'
54'
100
66
46c
8c
50
34
50
46c'
34'
54
40'
40
66
54
46b'
50'
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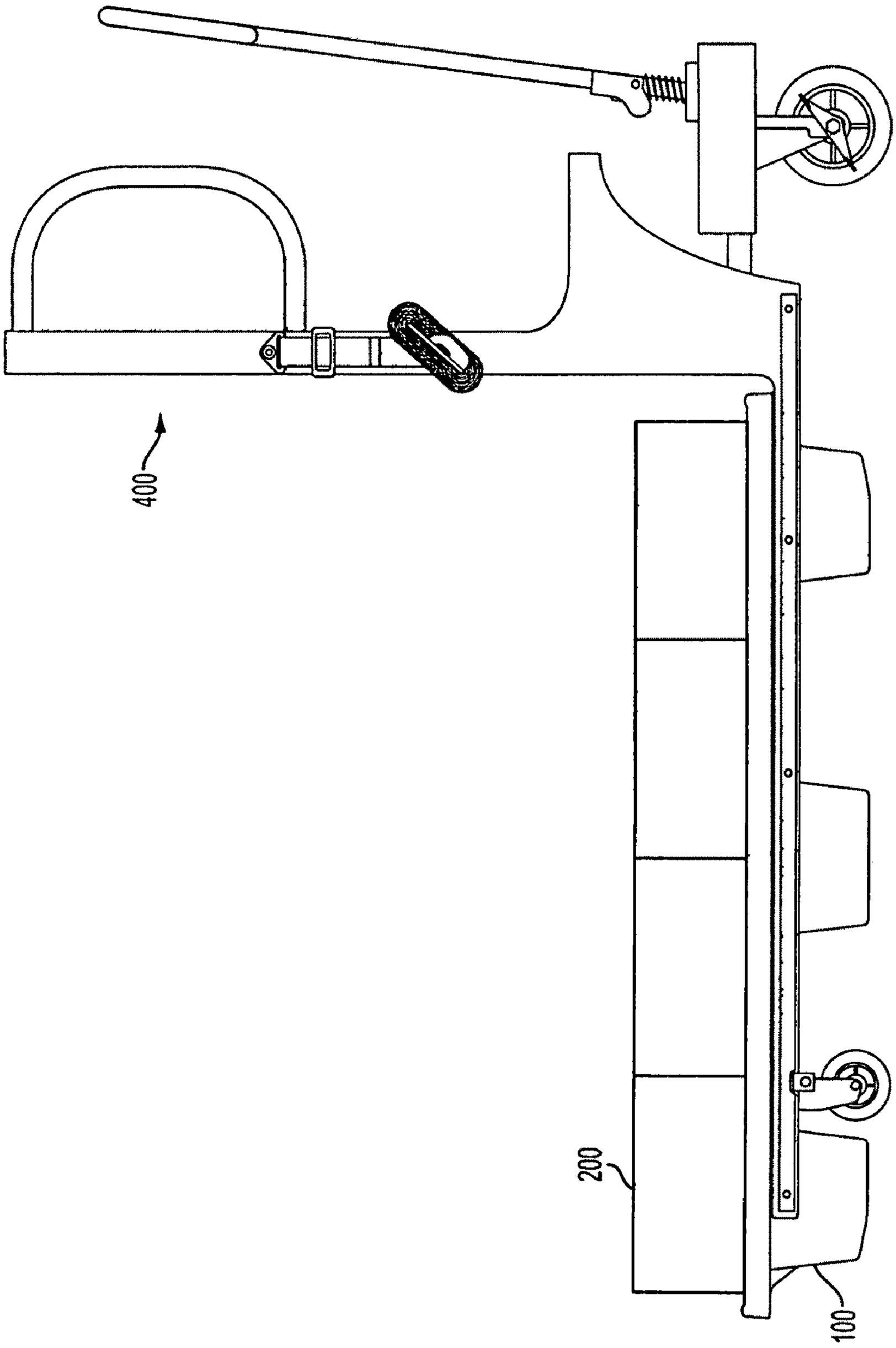
34'
46b
8b
8b'
26a'
36'
36'
26a
36
36

FIG. 12



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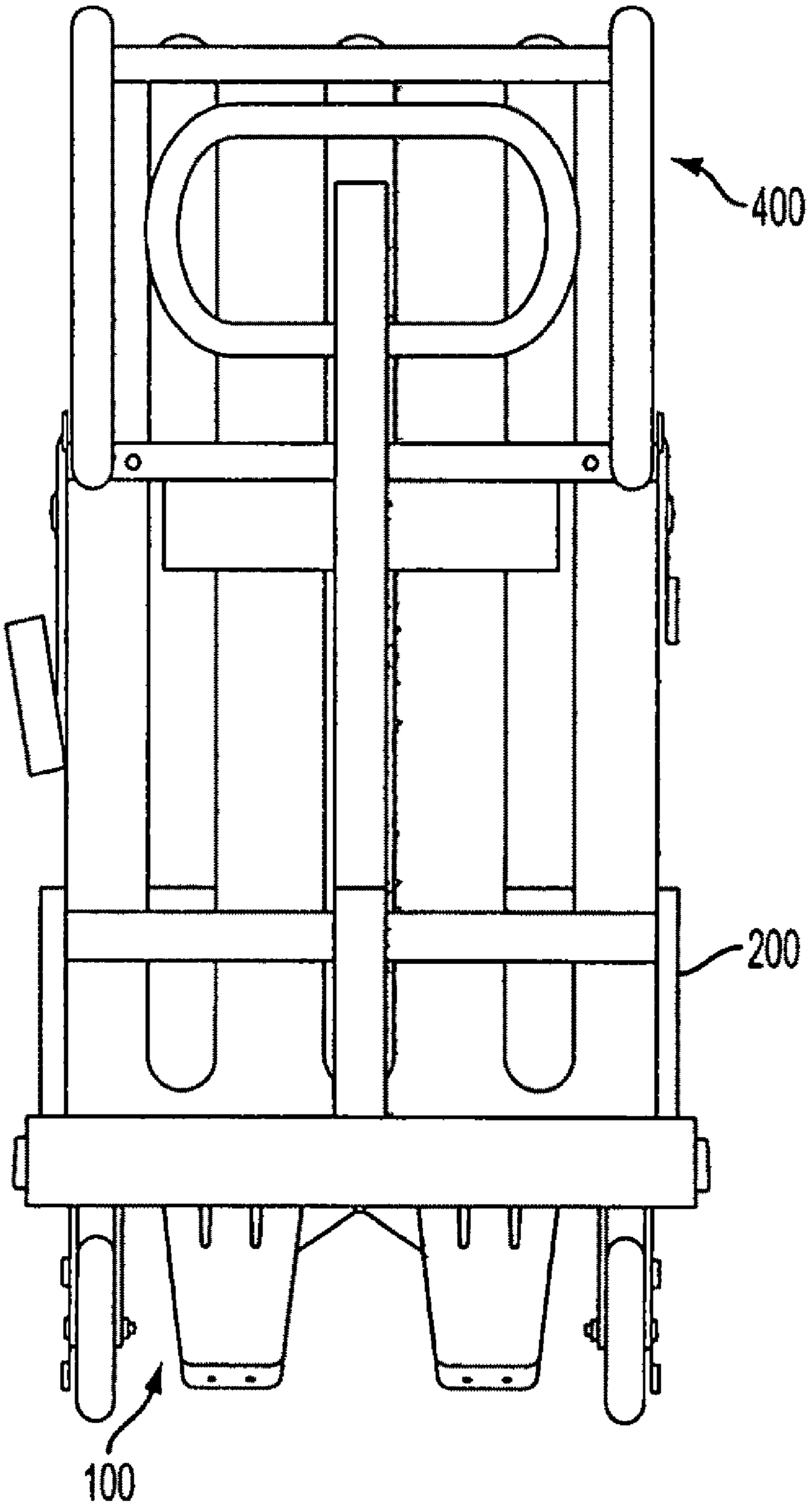
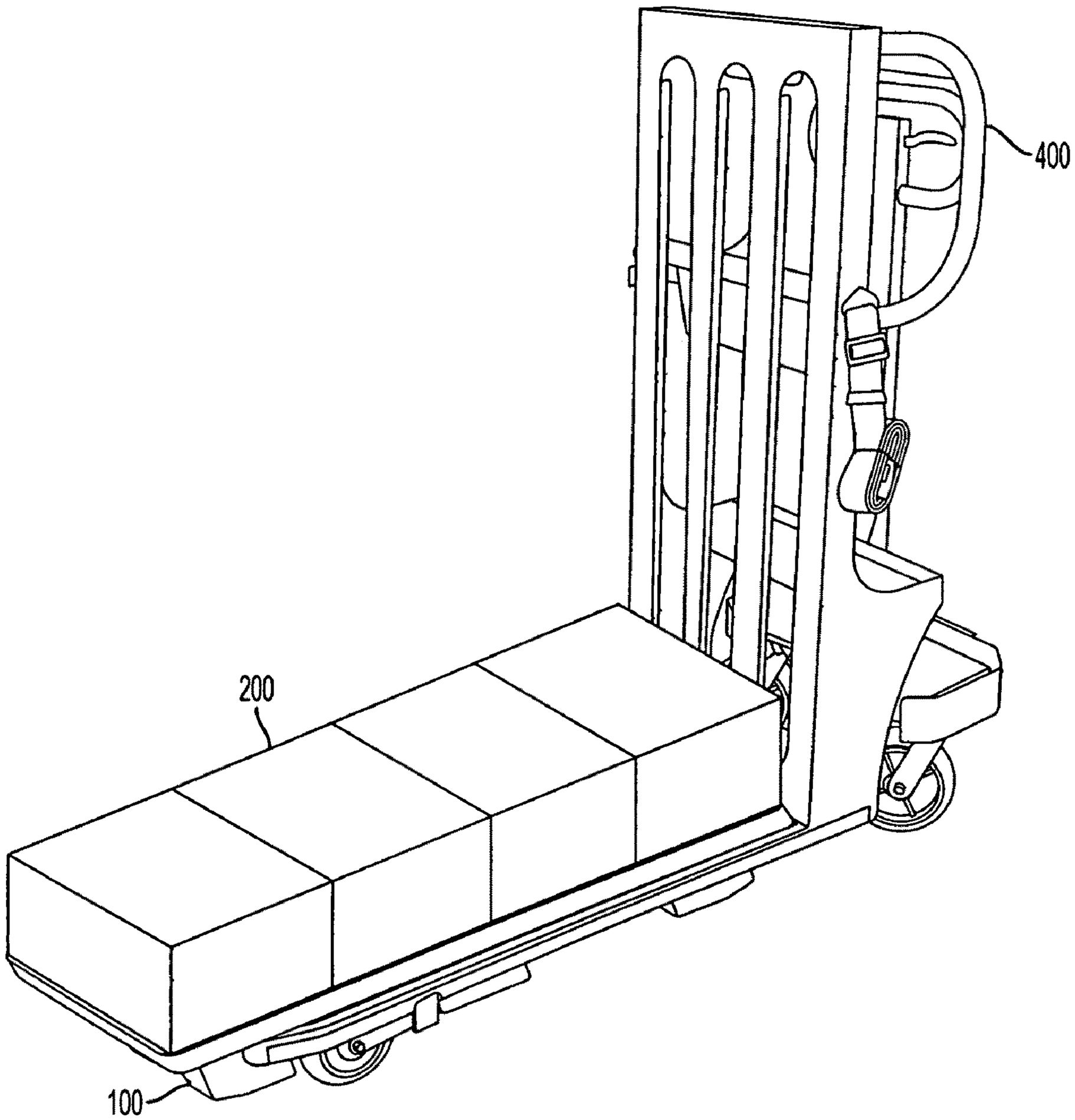


FIG. 14



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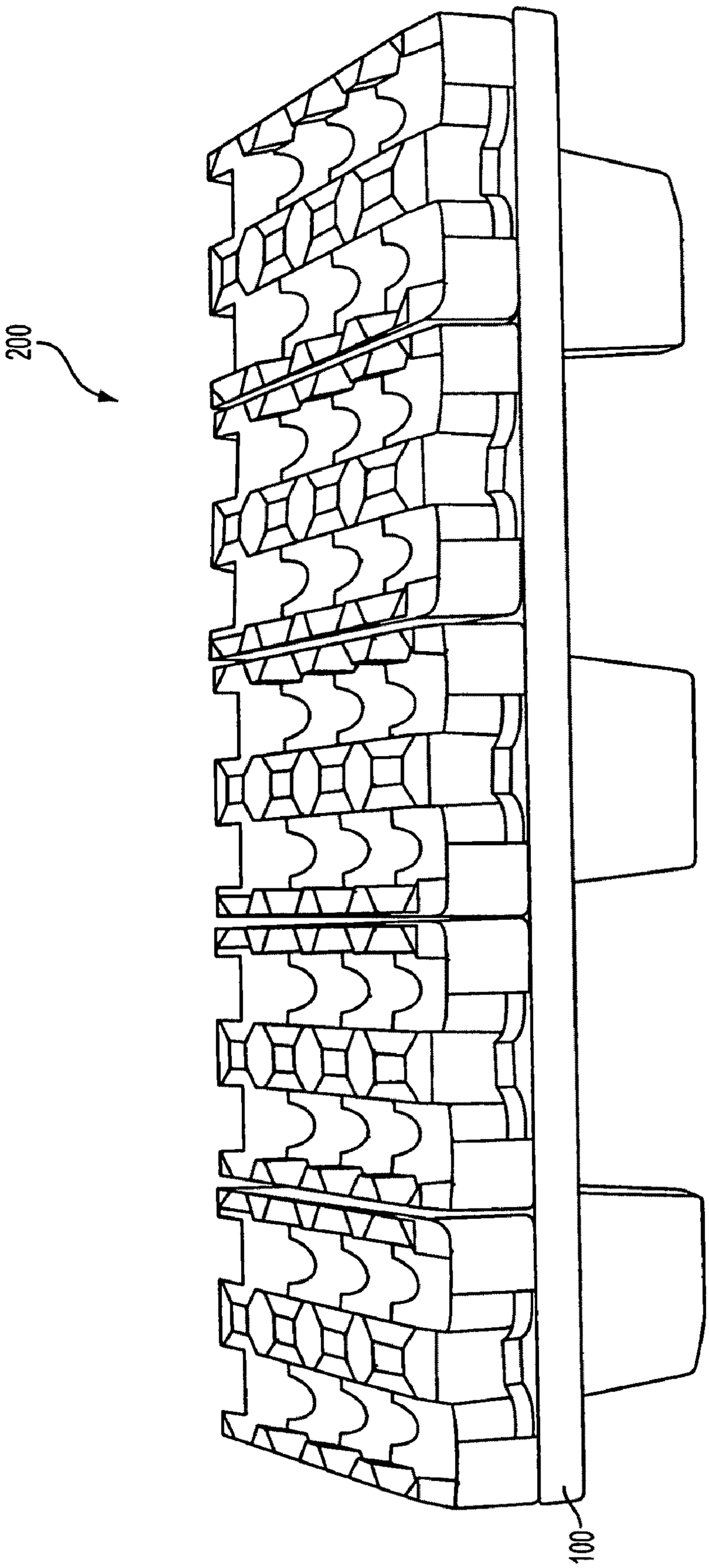


FIG. 16

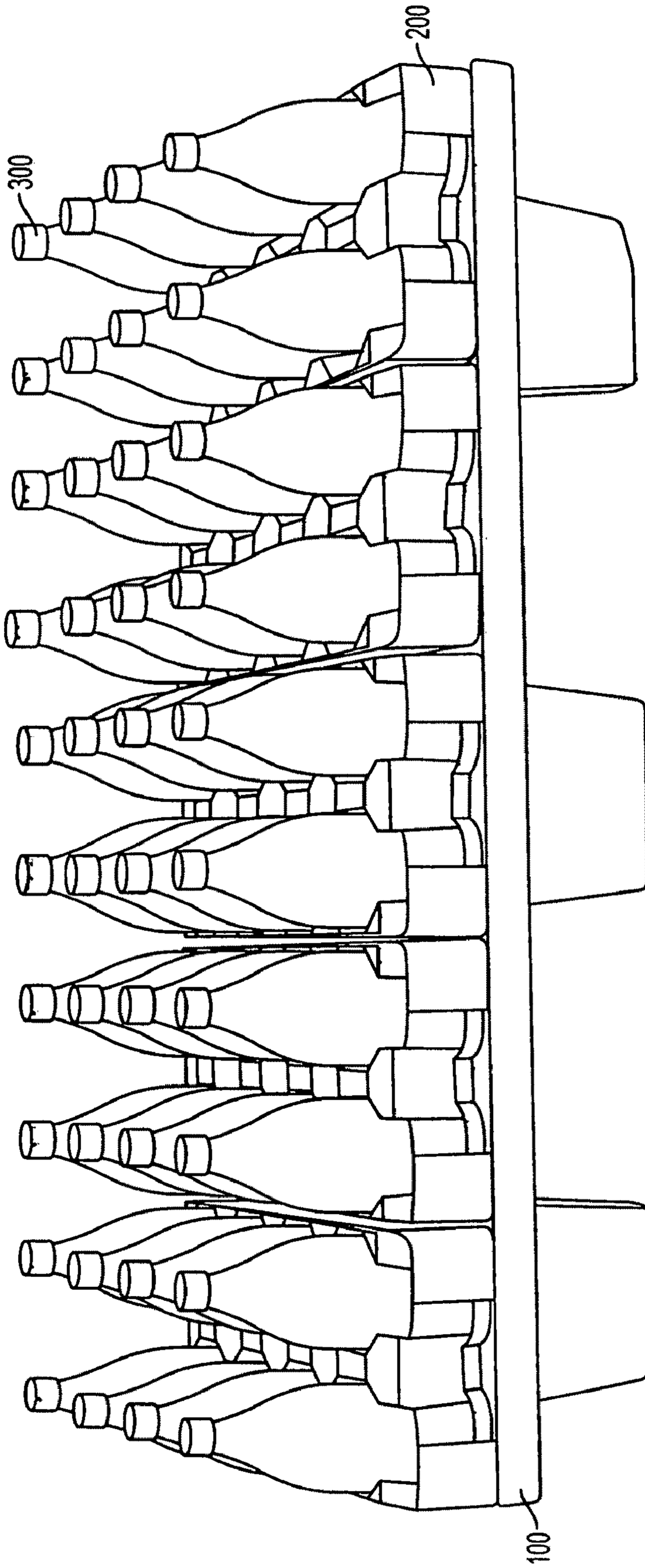
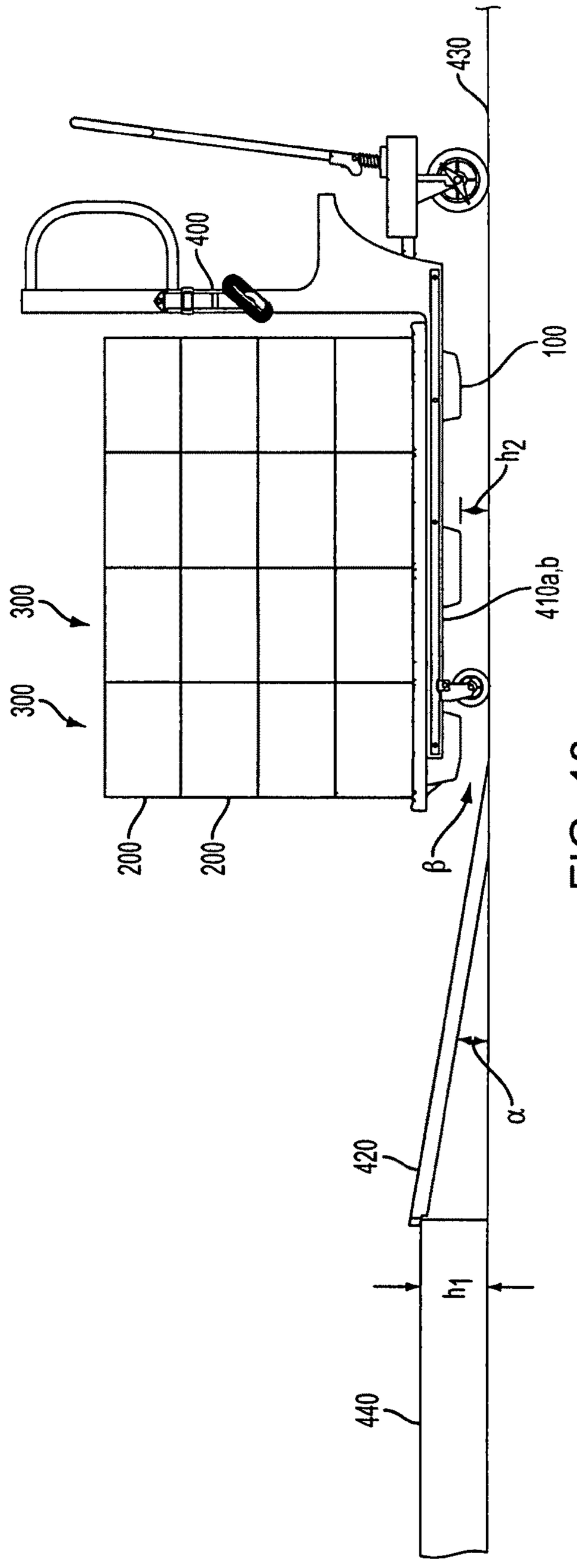


FIG. 17



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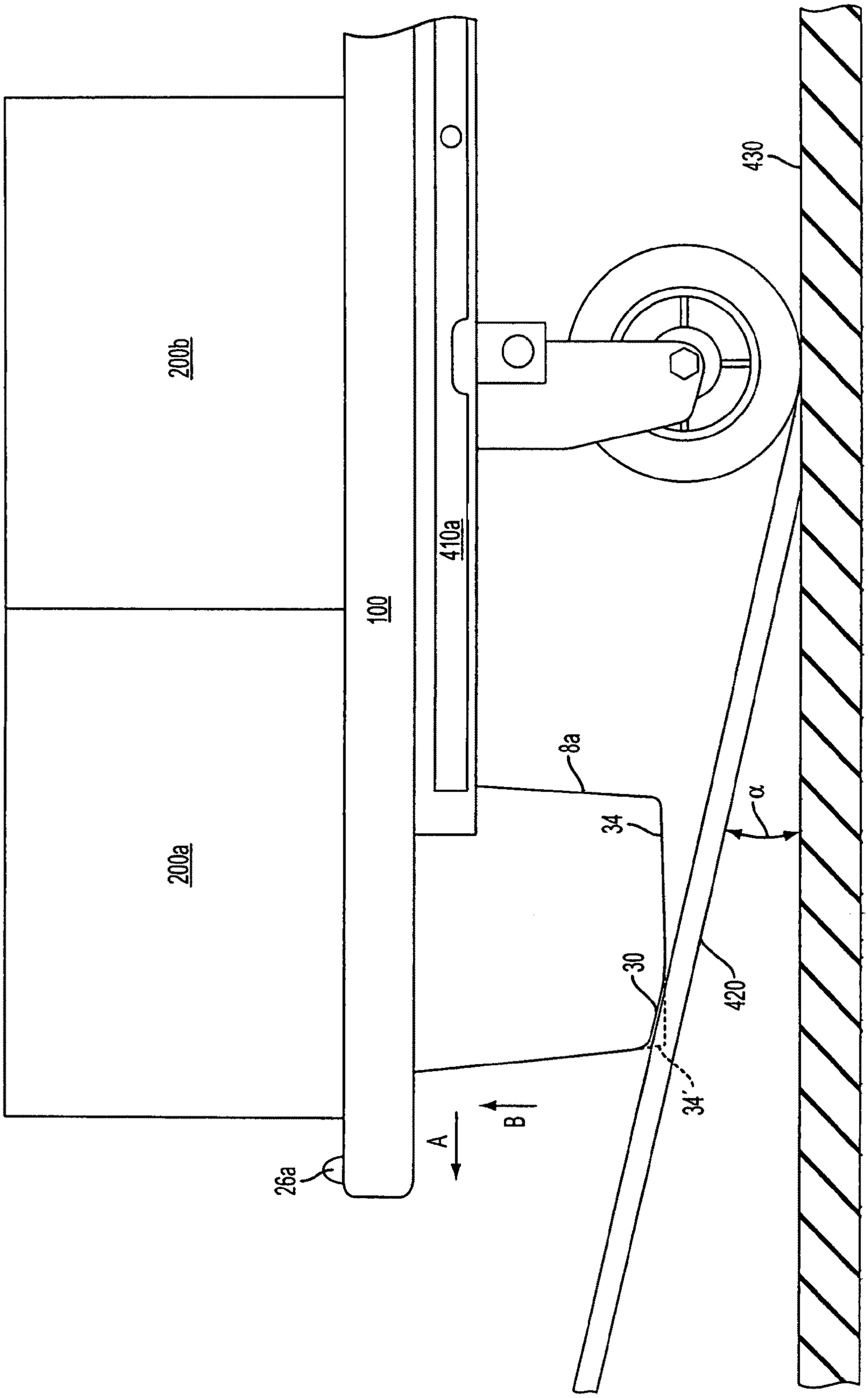

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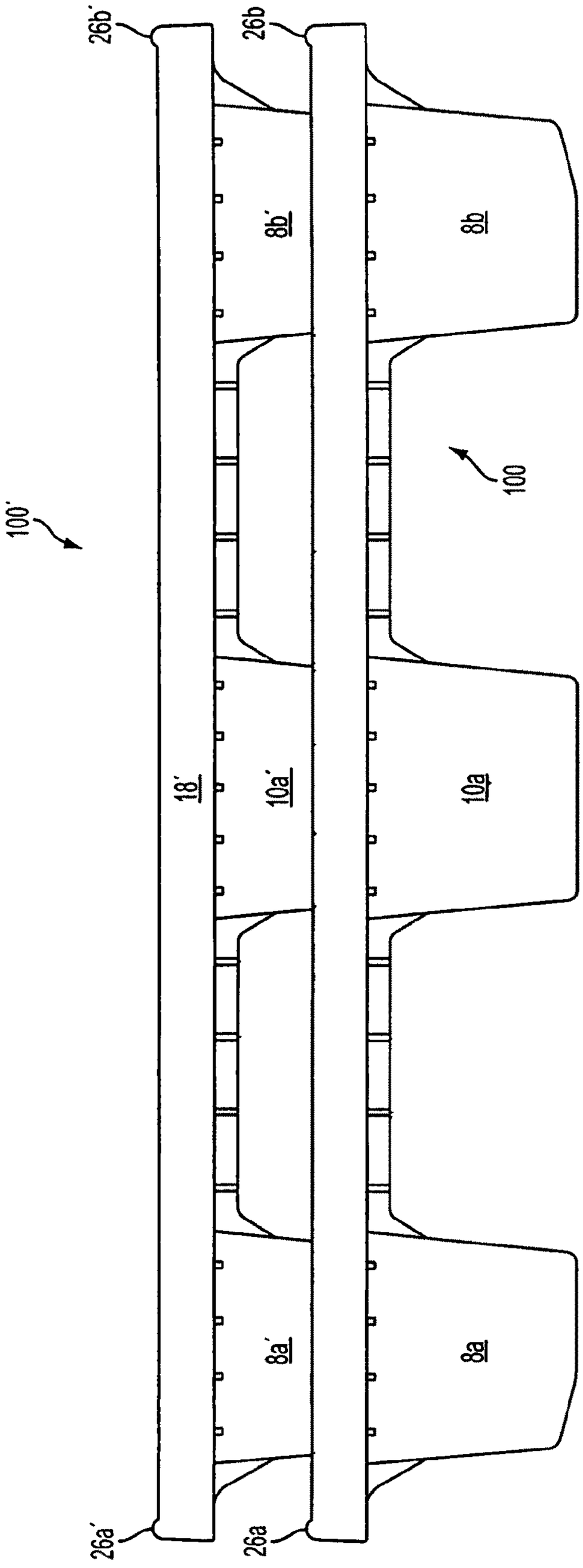

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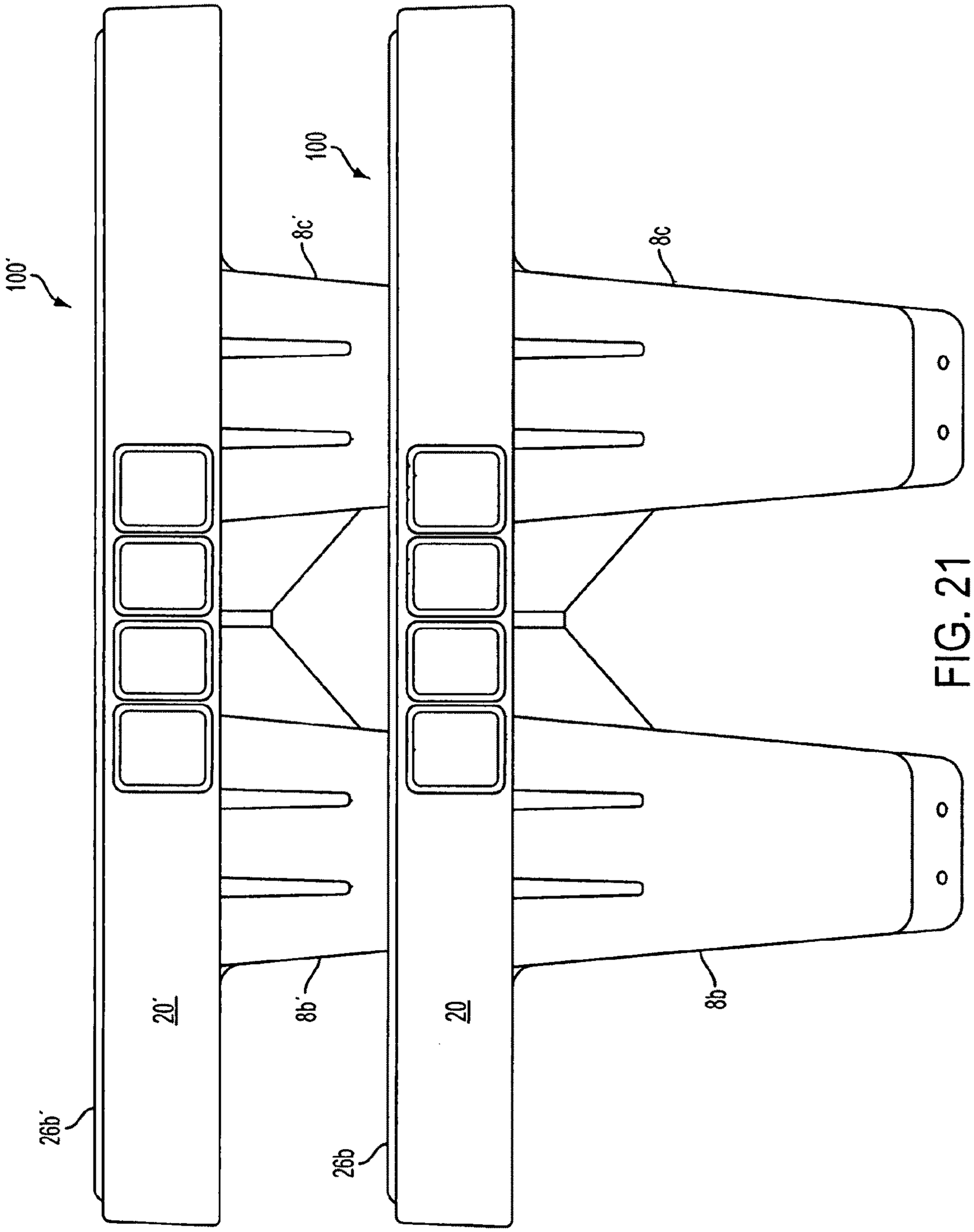
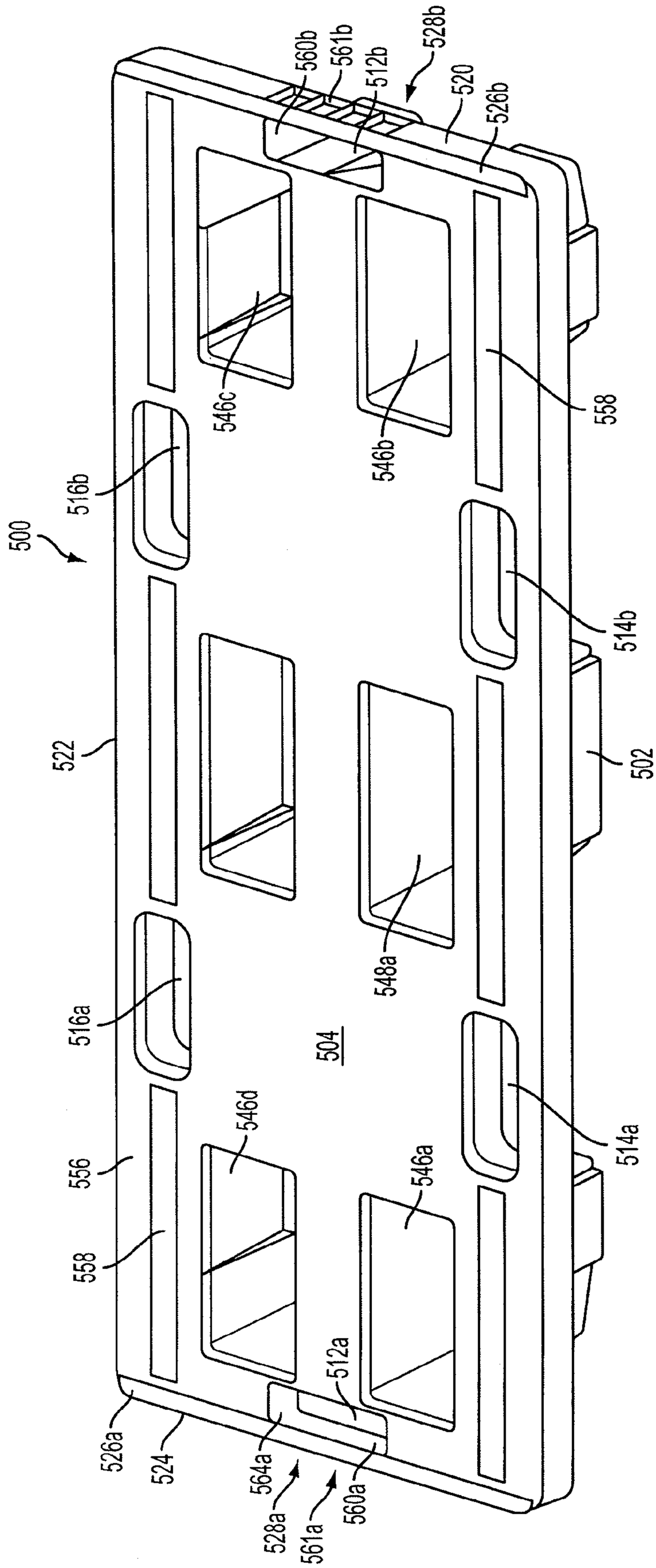


FIG. 21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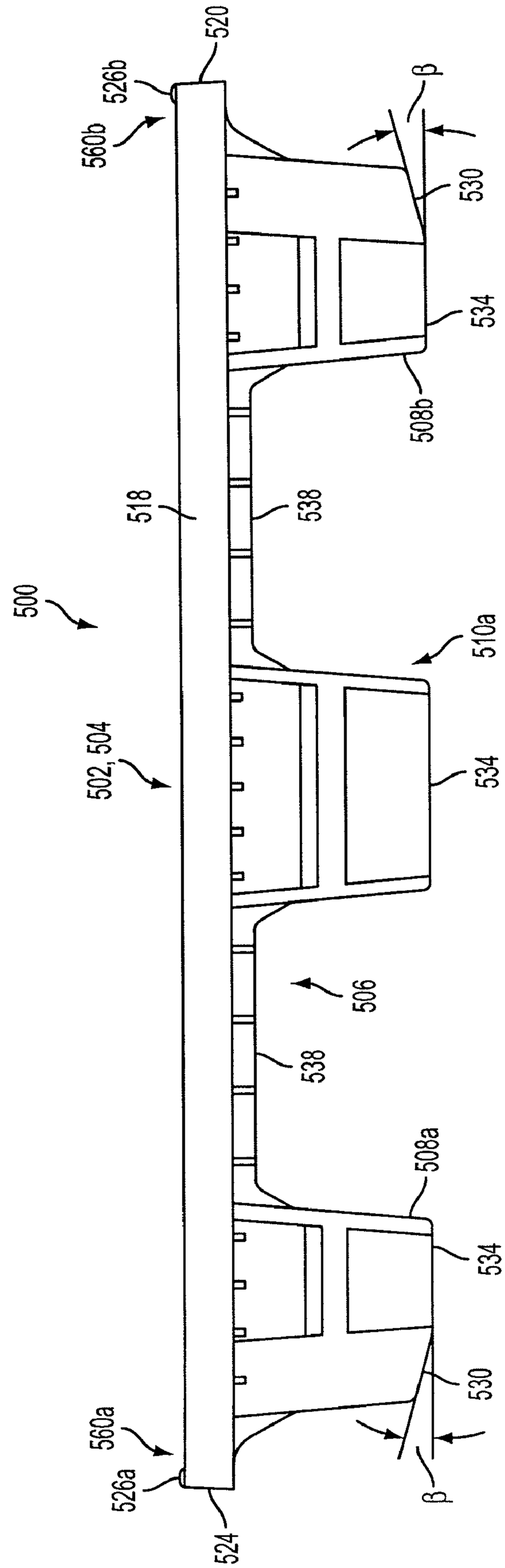
561b
512b
528b
520
526b
546c
546b
558
516b
500
522
548a
504
514b
502
516a
546d
546a
514a
556
558
512a
526a
524
564a
528a
561a
560a

FIG. 22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526b
560b
β
530
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508b
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510a
502, 504
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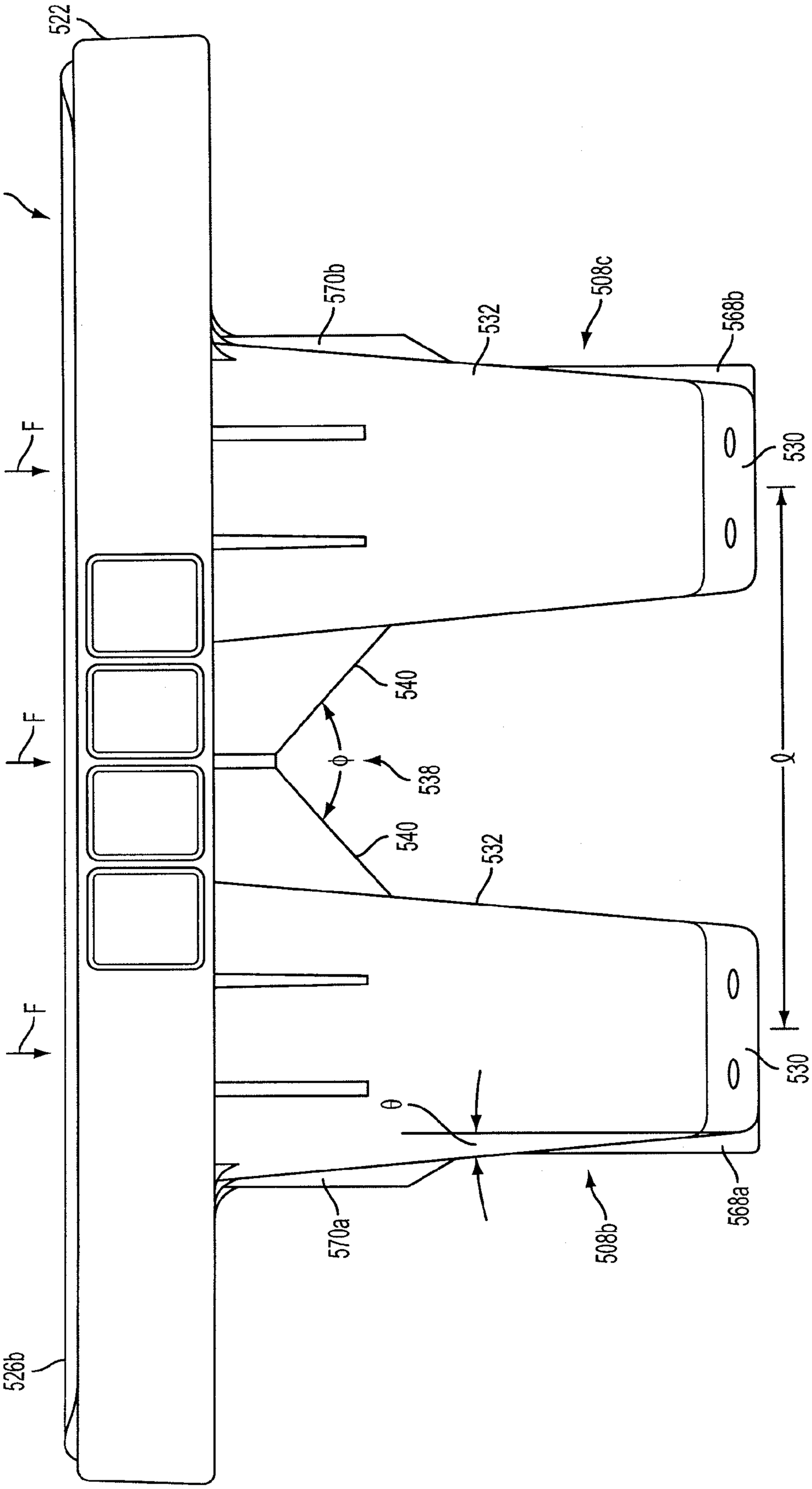
506
538
508a
534
530
560a
526a
524
β

FIG. 23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570b
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508c
568b
530
F
F
F
F
540
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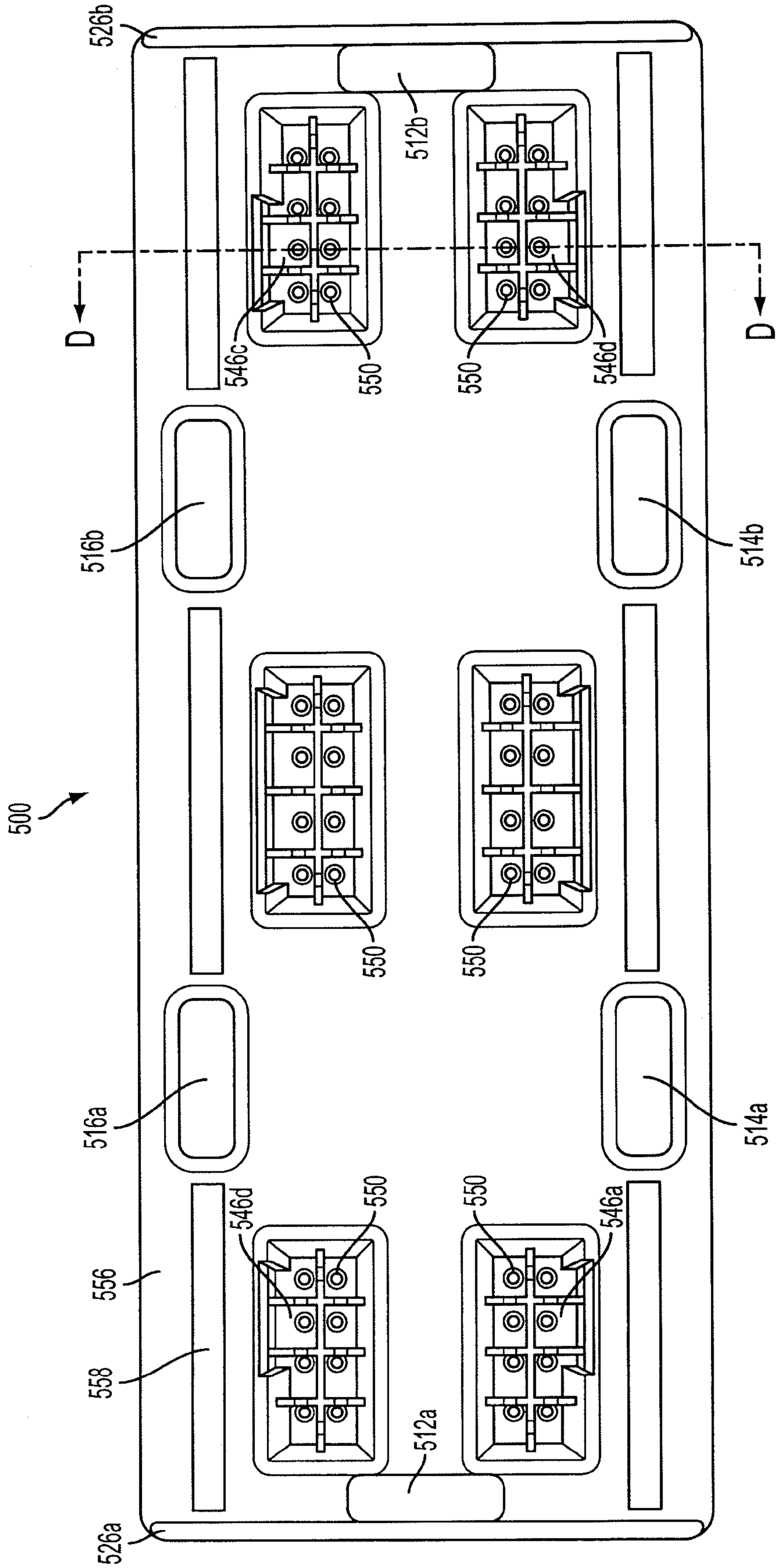
532
Q
θ
570a
508b
568a
530
526b

FIG. 24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512b
546c
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550
546d
D
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516b
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516a
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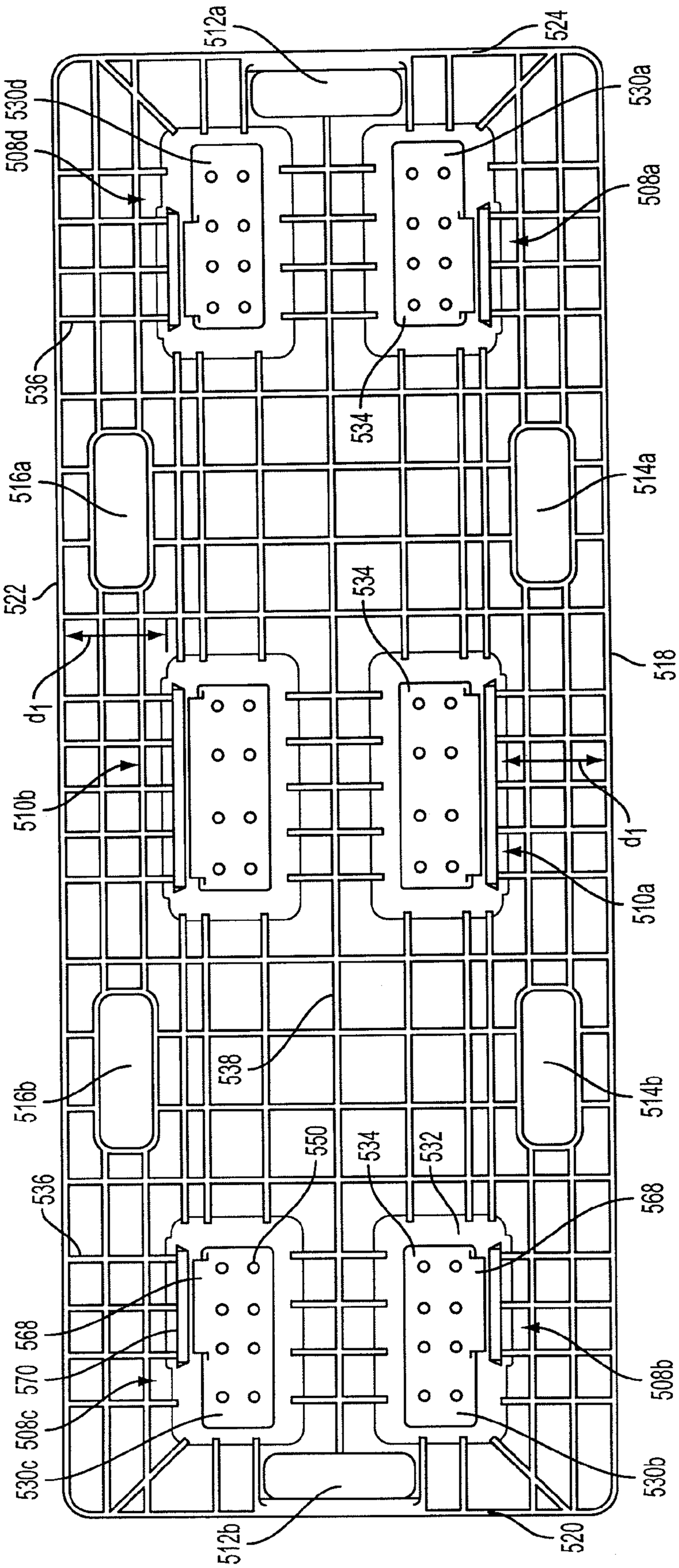
546a
556
558
512a
526a

FIG. 25


512a
524
508d 530d
530a
508a
536
534
516a
514a
522
534
518
d1
510b
d1
510a
538
516b
514b
550
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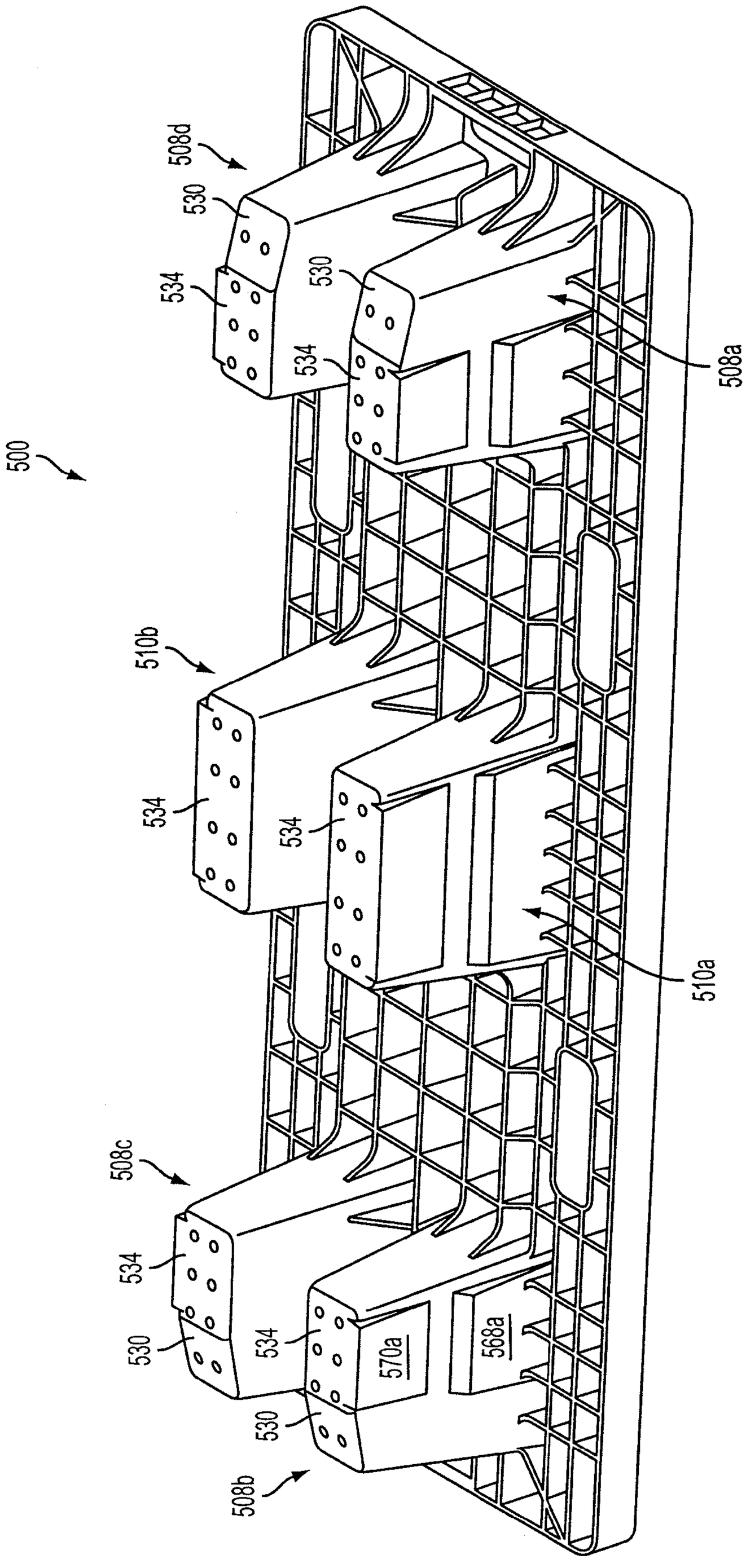
532
536
568
568
570
508c
508b
530c
530b
512b
520

FIG. 26


500
508d
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568a
530
508b

FIG. 27

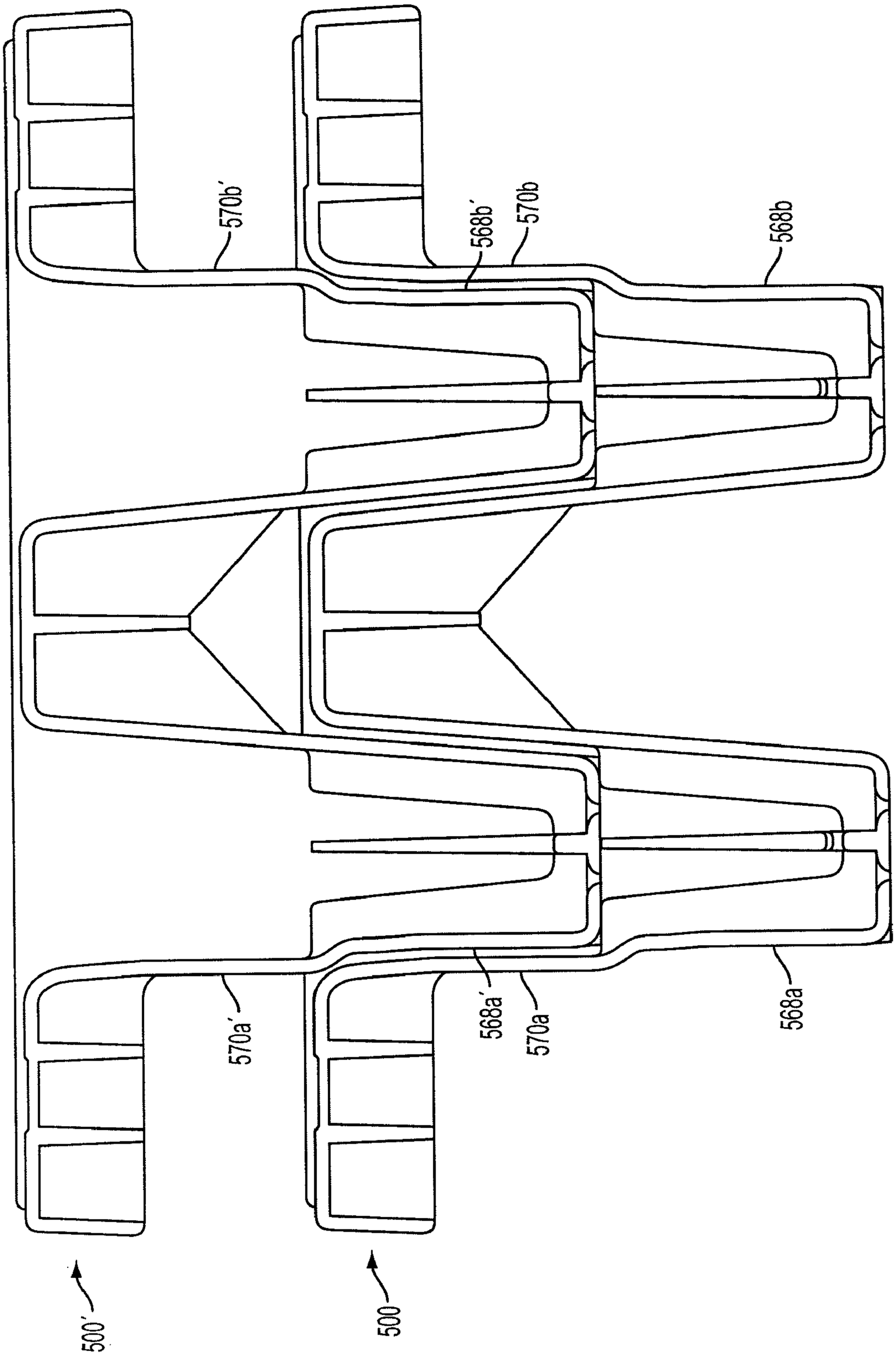

FIG. 28

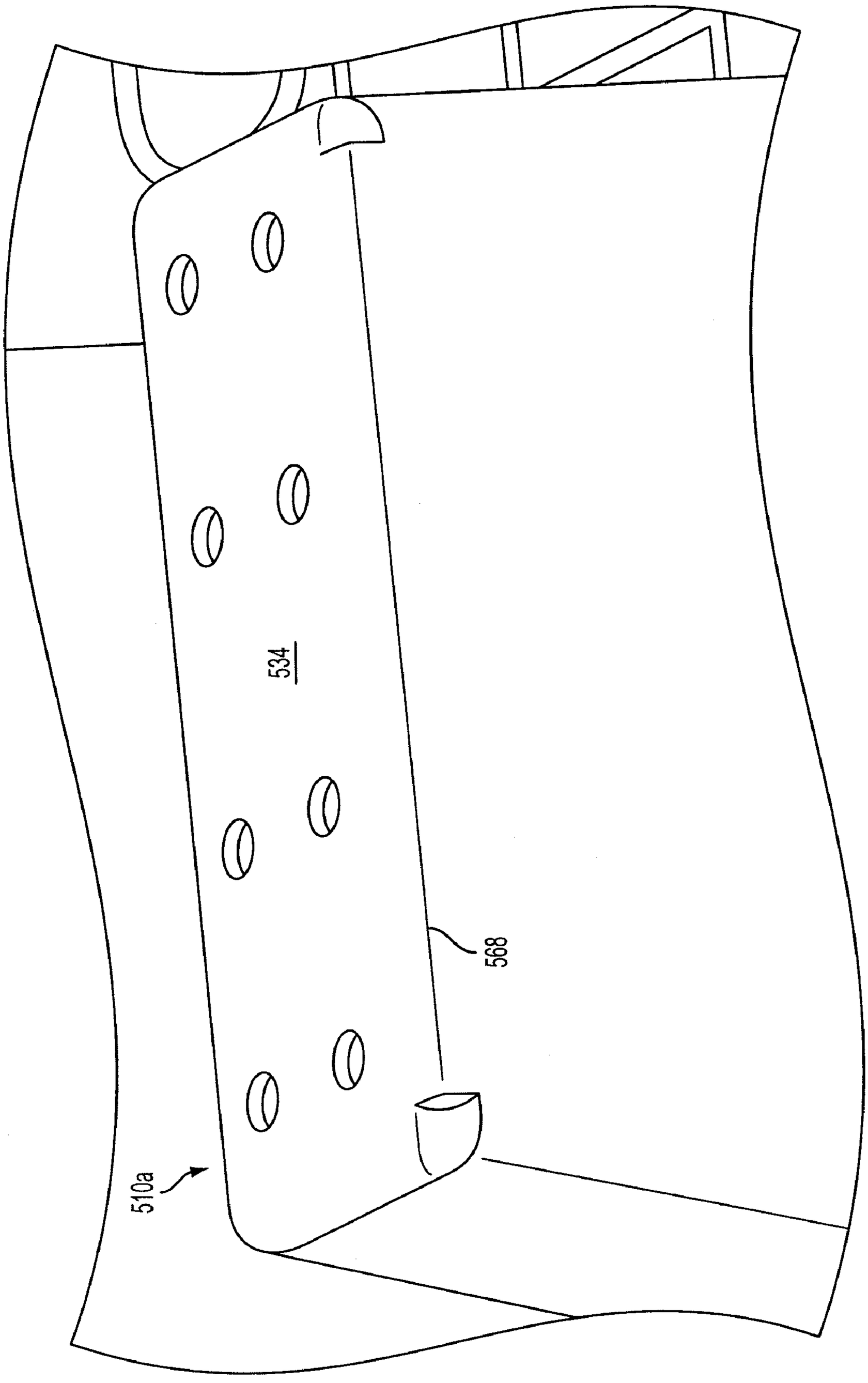

FIG. 29

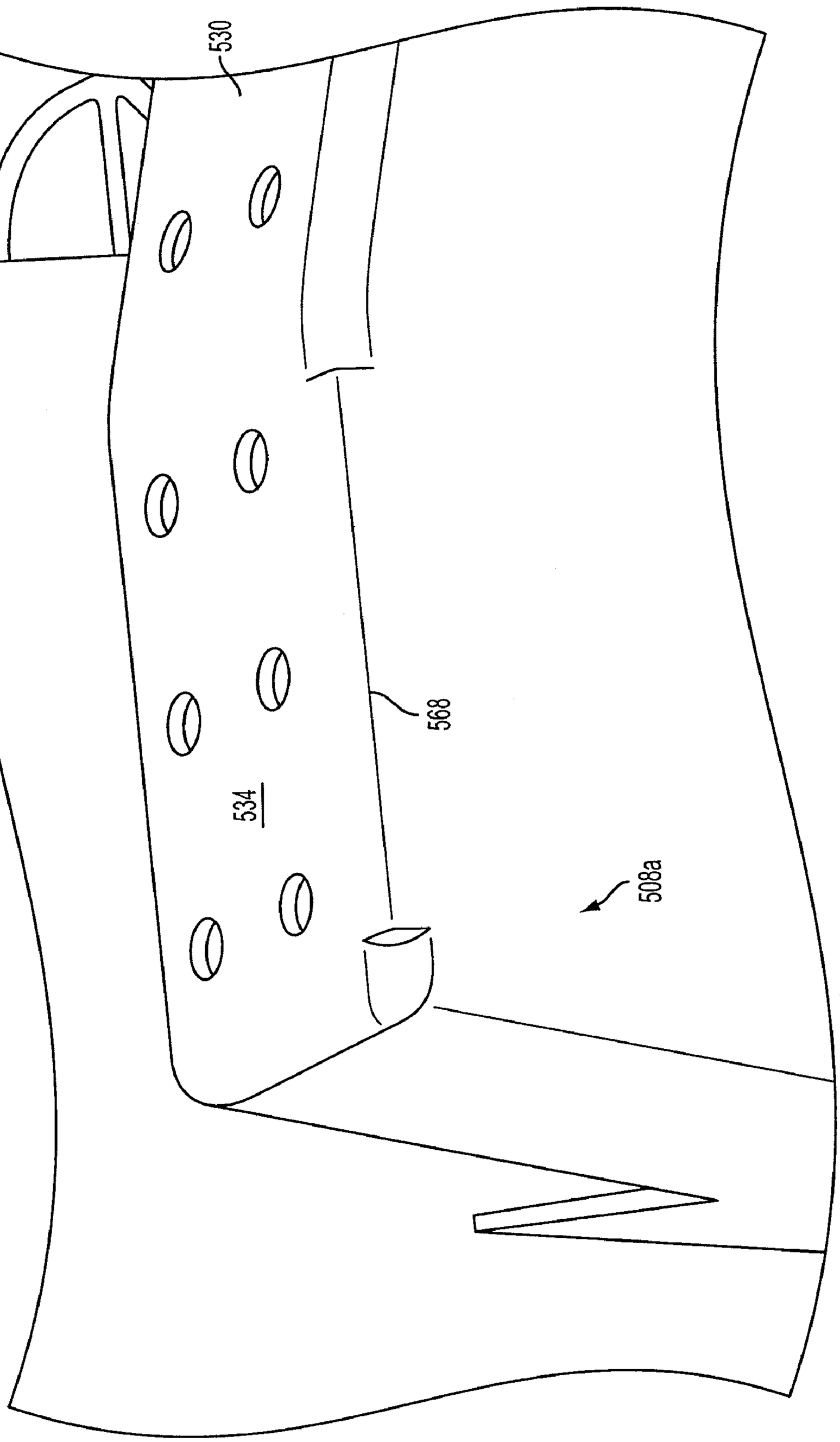

FIG. 30

STACKABLE PACKAGED GOODS PALLET

PRIORITY

Pursuant to 37 C.F.R. §1.53(b)(2), this application claims priority as a Continuation-in-Part Application under 35 U.S.C. §120 to U.S. Non-provisional patent application entitled "STACKABLE PACKAGED GOODS PALLET", filed in the U.S. Patent and Trademark Office on Dec. 22, 2006, and assigned Ser. No. 11/615,635, the entire contents of which are expressly incorporated herein by reference.

CROSS REFERENCE TO RELATED APPLICATIONS

Related subject matter is disclosed in co-pending U.S. Non-provisional patent application Ser. No. 11/615,677, entitled "A Pallet Jack System and Method for the Transportation of Stackable Packaged Goods Pallets", filed on Dec. 22, 2006, the entire contents of which are expressly incorporated herein by reference.

BACKGROUND OF THE INVENTION

1. Field of the Invention

The invention relates to stackable pallets. More particularly, the invention relates to a system and method for stacking packaged goods on a pallet and moving the same such that during transit, tipping and spillage of the packaged goods off the pallet is substantially reduced or eliminated.

2. Background Art

Consumers in the U.S., as is well known, purchase products for personal and home use from a variety of locations. These products include many different types of pre-packaged food items with significant shelf lives (breakfast cereals, cake mixes, snack foods, snack beverages, among many other items), personal care items (deodorants, toothpaste, shampoos, among many other items), as well home-use items such as paper towels, light bulbs, cleaning supplies (dishwashing detergents, washing machines detergent), among many other types. The types of stores where people purchase these items varies, and large nationally operated chain grocery stores (Shoppers®, Giant®, among others), nationally operated retail warehouse shopping stores (Wal-Mart®, Costco®, BJ's®, among others), and smaller convenience stores (7-11®, Wawa®, ExxonMart®, among others).

Even though a great variety of stores exist, consumers have become accustomed to purchasing whatever they want from wherever they want. That is, a consumer knows he or she can purchase, for example, beverage products (soft drinks), at any of the stores, the differentiation being perhaps price and size of containers. Manufacturers ship their goods to all these different types of stores, and they are generally shipped the same way: in cardboard boxes, loaded onto pallets.

The pallets used to ship all these different types of goods are loaded in central distribution warehouses. The loaded pallets are then placed into delivery vehicles, usually large wheel tractor trailers, and hauled to the different stores. Sometimes the entire loaded pallet is dropped off at the store, and the store's employees unload the pallets and stack the items onto shelves. Sometimes the drivers are responsible for unloading pallets and stacking shelves. Some items are not loaded onto pallets, but are loaded onto delivery vehicles, and then off-loaded from the delivery vehicle and stocked on shelves or point-of-purchase displays.

In the distribution chain described above, significant amounts of time and energy are devoted to the loading and subsequent unloading of pallets. Still further time and energy are devoted to the stocking of shelves of the shipped product. Although distribution of different products will vary, overall, it is about the same. The loading, unloading and shelving, or stacking of products costs hundred of millions of dollars each year through wages, and even worse, hundreds of millions, if not billions of dollars in lost employee time and workers' compensation claims due to back and repetitive stress injuries. Back and repetitive stress injuries cost significant money and negatively impairs employees' lives. Thus, the current mechanisms and methods for distribution of product (which can also extend in some instances to raw materials for manufacturing) has significant shortcomings that take a personal and economic toll on the lives of many people.

A particular example of a product that is distributed as described above are consumer soft drink beverages. People throughout the world consume vast quantities of beverages, commonly referred to as "soft drinks", and thus the soft drink industry is an extremely large one, wherein several billion dollars are spent annually. A significant portion of the people purchase soft drinks from restaurants of all different types, and others obtain their beverages from large retail stores, such as grocery stores or large discount stores (such as BJs®, Wal-Mart®, among others), yet a significant portion of the retail market also obtains their soft drink beverages from convenience stores.

FIG. **1** illustrates a type of device, commonly referred to as a dolly, that is used to transport many different types of products, including soft drinks. When soft drink product is distributed to grocery and convenience stores (retail location), it is generally placed on the distribution or delivery vehicle onto racks. The drivers or operators of the vehicles then unload the soft drink product at the retail location onto a dolly as shown in FIG. **1**. Then, the operator transports the loaded dolly, which can weigh about 250 lbs., into the retail location. Often times the parking lot is a gravel or dirt parking lot, or is paved, but the asphalt has large cracks and/or "potholes". The gravel, cracks, and/or potholes can cause operators to lose control of the loaded dolly, or make it difficult to keep control of the loaded dolly, which can lead to tipping and/or spillage of the product. Generally, the operator must also lift the loaded pallet up a curb from the parking lot to the sidewalk or entrance to the retail location. All these actions—loading, unloading, transport, lifting, and then shelving or stacking the product, consumes significant amounts of energy and time, and leads to the back and repetitive stress injuries discussed above.

Thus, a need exists for a pallet that transport and displays packaged goods that substantially eliminates or reduces the material and physical costs of distribution of product, and furthermore, substantially prevents or eliminates tipping and spillage of product while being shipped and transported.

SUMMARY OF THE INVENTION

It is therefore a general object of the invention to provide a packaged goods pallet that will obviate or minimize problems of the type previously described.

It is a specific object of the invention to provide a packaged goods pallet that can be stacked upon another like, similar container.

It is an object of the present invention to provide a packaged goods pallet that can be stacked upon another like, similar container in a 0° and 180° stacking orientation.

It is an object of the present invention to provide a packaged goods pallet that substantially prevents containers and/

or trays from sliding off of the packaged goods pallet when stored thereon during shipping.

It is an object of the present invention to provide a packaged goods pallet that includes a ledge on two opposing side walls to substantially prevent containers and/or trays filled with product from sliding off the packaged goods pallet stored thereon during shipping.

It is an object of the present invention to provide a packaged goods pallet that contains a plurality of means for strengthening the pallet such that greater quantities and weights of products can be shipped.

It is an object of the present invention to provide a packaged goods pallet that includes a plurality of V-shaped ribs to provide increased tensile strength between a plurality of stacking feet such that greater quantities and weights of products can be shipped.

It is an object of the present invention to provide a packaged goods pallet that includes a first plurality of strengthening ribs located between a plurality of stacking feet and a second plurality of strengthening ribs located along an outer perimeter area of the pallet, wherein the first set of strengthening ribs are taller than the second set of strengthening ribs thereby allowing greater quantities and weights of products to be shipped on the pallet.

It is an object of the present invention to provide a packaged goods pallet that includes a plurality of handle strengthening areas that includes one or more strengthening ridges thereby allowing greater quantities and weights of products to be shipped on the pallet.

It is an object of the present invention to provide a packaged goods pallet that provides a means for a user to substantially easily remove an upper container off a lower like or similar container.

It is an object of the present invention to provide a packaged goods pallet that includes a plurality of finger recesses on an inner wall located near one or more of a plurality of handles thereby allowing a user to substantially easily remove an upper container off a lower like or similar container.

It is an object of the present invention to provide a packaged goods pallet that includes a plurality of finger recesses on an outer wall located near one or more of a plurality of handles thereby allowing a user to substantially easily remove an upper container off a lower like or similar container.

It is an object of the present invention to provide a packaged goods pallet that includes a plurality of inner ribs on an interior portion of a plurality of stacking feet thereby substantially preventing an upper pallet from wedging into a lower pallet when stacked in either a 0° or a 180° stacking orientation thereby allowing a user to substantially easily remove an upper container off a lower like or similar container.

It is an object of the present invention to provide a packaged goods pallet that allows a user to substantially easily traverse a ramp from a first surface to a second surface, at a proscribed angle, with little or no impedance.

It is an object of the present invention to provide a packaged goods pallet that includes a plurality of angled surfaces on a plurality of stacking feet such that the pallet can substantially easily traverse a ramp from a first surface to a second surface, at a proscribed angle, with little or no impedance.

The above described disadvantages are overcome and a number of advantages are realized by a first aspect of the present invention which relates to a pallet for use in transporting packaged goods, comprising: a front side wall, a right side wall, a rear side wall and a left side wall, the pallet having a central longitudinal axis running from the left side wall to the right side wall; a base configured to support the packaged goods, the base being joined to each of the front side wall, right side wall, rear side wall, and left side wall such that each side wall is orthogonal to the base, the base including an upper surface and a lower surface, the upper surface being substantially planar, and the lower surface including a first set of ribs substantially perpendicular and adjacent to the central longitudinal axis of the pallet; and a plurality of pairs of stacking feet configured to support the base of the pallet, wherein each stacking foot in each pair of stacking feet is substantially equidistant from the central longitudinal axis of the pallet, and further wherein, each rib in the first set of ribs is configured to join a respective pair of stacking feet together to substantially inhibit the respective pair of stacking feet from spreading when the pallet rests upon the stacking feet.

According to the first aspect of the present invention, for each pair of stacking feet, a first stacking foot is located on a first side of the central longitudinal axis, and a second stacking foot is located on a second side of the central longitudinal axis, and wherein, the first stacking foot and the second stacking foot are each located substantially equi-distant from the central longitudinal axis of the pallet. According to the first aspect of the present invention the first set of ribs comprises: a plurality of substantially V-shaped ribs, wherein each of the substantially V-shaped ribs forms a V-shaped angle, and further wherein the V-shaped angle formed by each of the substantially V-shaped ribs measures between about 70° and about 110°. According to the first aspect of the present invention the V-shaped angle formed by each of the substantially V-shaped ribs measures between about 80° and about 100°, and further wherein the V-shaped angle formed by each of the substantially V-shaped ribs measures about 90°.

According to the first aspect of the present invention the plurality of pairs of stacking feet comprises three pairs of stacking feet, and the first aspect further comprises a plurality of handles configured to enable a user to grasp the pallet, wherein each of the handles is positioned on the base. The plurality of handles in the first aspect comprises: a left side wall handle located adjacent to the left side wall and wherein the left side wall handle is substantially symmetrically placed about the central longitudinal axis; a right side wall handle located adjacent to the right side wall and wherein the right side wall handle is substantially symmetrically placed about the central longitudinal axis; a pair of front side wall handles located adjacent to the front side wall; and a pair of rear side wall handles located adjacent to the rear side wall, wherein, each handle in each of the pair of front side wall handles and rear side wall handles are located substantially equidistant from an orthogonal longitudinal axis, wherein, the orthogonal longitudinal axis is substantially perpendicular to the central longitudinal axis, and is substantially equidistant from the left side wall and the right side wall.

According to the first aspect of the present invention each of the left side wall handles and the right side wall handles comprises: a plurality of handle strengthening ribs configured to strengthen the left side wall and right side wall respectively, and wherein each of the left side wall handle and right side wall handle further comprises: a plurality of finger recesses located on the left side wall and right side wall, respectively. The first aspect further comprises a left ledge located on the upper surface of the base over the left side wall; and a right ledge located on the upper surface of the base over the right side wall, wherein, the right ledge and the left ledge are configured to substantially prevent one or more of the packaged goods from sliding off the pallet. Each of the left ledge and the right ledge comprises: a raised portion of the upper surface of the base in a semi-circular shape with a radius between about 0.120 and about 0.6 inches, and wherein each of the left ledge and the right ledge comprises: a raised portion

of the upper surface of the base in a semi-circular shape with a radius of about 0.5 inches. According to the first aspect of the present invention the packaged goods comprise a plurality of beverage trays, and each of the plurality of beverage trays is filled with one or more beverage bottles.

The first aspect of the present invention further comprises one or more recesses located on the upper surface of the base; and a tacky material positioned within the one or more recesses, wherein the tacky material is configured to substantially prevent one or more of the packaged goods from sliding off the pallet.

A second aspect of the present invention provides a pallet for use in transporting packaged goods, comprising: a front side wall, a right side wall, a rear side wall and a left side wall, the pallet having a central longitudinal axis running from the left side wall to the right side wall; a base configured to support the packaged goods, the base being joined to each of the front side wall, right side wall, rear side wall, and left side wall such that each side wall is orthogonal to the base, the base including an upper surface and a lower surface, the upper surface being substantially planar, and the lower surface including a first set of ribs substantially perpendicular and adjacent to the central longitudinal axis of the pallet; and a plurality of pairs of stacking feet configured to support the base of the pallet, wherein a first pair of stacking feet are located adjacent the left side wall, a second pair of stacking feet are located adjacent the right side wall, and a third pair of stacking feet are located between the first pair of stacking feet and second pair of stacking feet, and wherein each of the stacking feet in the first pair of stacking feet includes a substantially horizontal floor portion and an angled portion originating from the substantially horizontal floor portion, and wherein, the angled portion is formed at an angle in the range of about 5° to about 20° with respect to a plane of the substantially horizontal portion of the first pair of stacking feet, such that a plane of the angled portion of the first pair of stacking feet intersects a plane of the base of the pallet, and further wherein each of the stacking feet in the second pair of stacking feet includes a substantially horizontal floor portion and an angled portion originating from the substantially horizontal floor portion, wherein, the angled portion is formed at an angle in the range of about 10° to about 20° with respect to a plane of the substantially horizontal portion of the second pair of stacking feet, such that a plane of the angled portion of the second pair of stacking feet intersects a plane of the base of the pallet, and further wherein, the angled portions of each of the first pair of stacking feet and second stacking feet are configured to enable the pallet to be transported over an inclined ramp without substantially interfering with the inclined ramp.

According to the second aspect of the present invention the inclined ramp is placed between a street, and an uppermost portion of a curb alongside the street, and further wherein the angled portion of both the first pair of stacking feet and second pair of stacking feet is formed at an angle of about 15°. According to the second aspect of the present invention the packaged goods comprise a plurality of beverage trays, and wherein each of the plurality of beverage trays is filled with one or more beverage bottles.

The second aspect of the present invention further comprises a plurality of handles configured to enable a user to grasp the pallet, wherein each of the handles is positioned on the base, and wherein the plurality of handles comprises: a left side wall handle located adjacent to the left side wall and wherein the left side wall handle is substantially symmetrically placed about the central longitudinal axis; a right side wall handle located adjacent to the right side wall and wherein the right side wall handle is substantially symmetrically placed about the central longitudinal axis; a pair of front side wall handles located adjacent to the front side wall; and a pair of rear side wall handles located adjacent to the rear side wall, wherein, each handle in each of the pair of front side wall handles and rear side wall handles are located substantially equidistant from an orthogonal longitudinal axis, wherein, the orthogonal longitudinal axis is substantially perpendicular to the central longitudinal axis, and is substantially equidistant from the left side wall and the right side wall.

According to the second aspect of the present invention each of the left side wall handles and the right side wall handles comprises: a plurality of handle strengthening ribs configured to strengthen the left side wall and right side wall respectively, and wherein each of the left side wall handle and right side wall handle further comprises: a plurality of finger recesses located on the left side wall and right side wall, respectively.

The second aspect of the present invention further comprises a left ledge located on the upper surface of the base over the left side wall; and a right ledge located on the upper surface of the base over the right side wall, wherein, the right ledge and the left ledge are configured to substantially prevent one or more of the packaged goods from sliding off the pallet, and wherein each of the left ledge and the right ledge comprises: a raised portion of the upper surface of the base in a semi-circular shape with a radius between about 0.120 and about 0.6 inches.

According to the second aspect of the present invention each of the left ledge and the right ledge comprises: a raised portion of the upper surface of the base in a semi-circular shape with a radius of about 0.5 inches. According to the second aspect of the present invention the packaged goods comprise a plurality of beverage trays, and wherein each of the plurality of beverage trays is filled with one or more beverage bottles.

The second aspect of the present invention further comprises one or more recesses located on the upper surface of the base; and a tacky material positioned within the one or more recesses, wherein the tacky material is configured to substantially prevent one or more of the packaged goods from sliding off the pallet, and wherein each stacking foot in each pair of stacking feet comprises: an interior portion configured to accept a corresponding stacking foot from an upper, substantially similar pallet, when the upper, substantially similar pallet is stacked upon a lower pallet, and wherein the interior portion comprises a plurality of ribs configured to substantially prevent the corresponding stacking foot from the substantially similar upper pallet from becoming wedged into the interior portions of each corresponding stacking foot of the lower pallet, and further wherein, the ribs in the first pair of stacking feet and the second pair of stacking feet substantially support the substantially horizontal floor portion and the angled portion of each of the corresponding stacking feet of the upper substantially similar pallet, such that bending of the upper, substantially similar pallet is substantially prevented about the first pair of stacking feet and second pair of stacking feet of the upper, substantially similar pallet, thereby substantially preventing premature failure of the upper, substantially similar pallet.

A third aspect of the present invention provides a pallet for use in transporting packaged goods, comprising: a front side wall, a right side wall, a rear side wall and a left side wall, the pallet having a central longitudinal axis running from the left side wall to the right side wall; a base configured to support the packaged goods, the base being joined to each of the front side wall, right side wall, rear side wall, and left side wall such

that each side wall is orthogonal to the base, the base including an upper surface and a lower surface, the upper surface being substantially planar, and the lower surface including a first set of ribs substantially perpendicular and adjacent to the central longitudinal axis of the pallet; and a plurality of pairs of stacking feet configured to support the base of the pallet, wherein each stacking foot in each pair of stacking feet is substantially equidistant from the central longitudinal axis of the pallet, thereby forming a set of front side wall stacking feet and a set of rear side wall stacking feet, and further wherein, the set of front side wall stacking feet are located at a predetermined distance from the front side wall, and the set of rear side wall stacking feet are located at a predetermined distance from the rear side wall, such that a first tine from a lifting device can be located adjacent the set of front side wall stacking feet, and a second tine from a lifting device can be located adjacent the set of rear side wall stacking feet, such that each of the first tine and the second tine is substantially parallel to the central longitudinal axis of the pallet, thereby further enabling the pallet to be lifted by the first and second tines.

According to the third aspect of the present invention the location of the first and second tines when the pallet is lifted enables the pallet to be transported with substantial stability when loaded with the packaged goods.

The third aspect of the present invention further comprises a plurality of handles configured to enable a user to grasp the pallet, wherein each of the handles is positioned on the base, and wherein the plurality of handles comprises: a left side wall handle located adjacent to the left side wall and wherein the left side wall handle is substantially symmetrically placed about the central longitudinal axis; a right side wall handle located adjacent to the right side wall and wherein the right side wall handle is substantially symmetrically placed about the central longitudinal axis; a pair of front side wall handles located adjacent to the front side wall; and a pair of rear side wall handles located adjacent to the rear side wall, wherein, each handle in each of the pair of front side wall handles and rear side wall handles are located substantially equidistant from an orthogonal longitudinal axis, wherein, the orthogonal longitudinal axis is substantially perpendicular to the central longitudinal axis, and is substantially equidistant from the left side wall and the right side wall.

According to the third aspect of the present invention each of the left side wall handles and the right side wall handles comprises: a plurality of handle strengthening ribs configured to strengthen the left side wall and right side wall respectively, and wherein each of the left side wall handle and right side wall handle further comprises: a plurality of finger recesses located on the left side wall and right side wall, respectively.

The third aspect of the present invention further comprises a left ledge located on the upper surface of the base over the left side wall; and a right ledge located on the upper surface of the base over the right side wall, wherein, the right ledge and the left ledge are configured to substantially prevent one or more of the packaged goods from sliding off the pallet, and wherein each of the left ledge and the right ledge comprises: a raised portion of the upper surface of the base in a semi-circular shape with a radius between about 0.120 and about 0.6 inches, and wherein each of the left ledge and the right ledge comprises: a raised portion of the upper surface of the base in a semi-circular shape with a radius of about 0.5 inches.

According to the third aspect of the present invention the packaged goods comprise a plurality of beverage trays, and each of the plurality of beverage trays is filled with one or more beverage bottles.

The third aspect of the present invention further comprises one or more recesses located on the upper surface of the base; and a tacky material positioned within the one or more recesses, wherein the tacky material is configured to substantially prevent one or more of the packaged goods from sliding off the pallet.

A fourth aspect of the present invention provides a pallet for use in transporting packaged goods, comprising: a front side wall, a right side wall, a rear side wall and a left side wall, the pallet having a central longitudinal axis running from the left side wall to the right side wall; a base configured to support the packaged goods, the base being joined to each of the front side wall, right side wall, rear side wall, and left side wall such that each side wall is orthogonal to the base; a plurality of pairs of stacking feet configured to support the base of the pallet, wherein each stacking foot in each pair of stacking feet is substantially equidistant from the central longitudinal axis of the pallet, and further wherein, the base including an upper surface and a lower surface, the upper surface being substantially planar, and the lower surface including a first set of ribs substantially perpendicular and adjacent to the central longitudinal axis of the pallet, a second set of ribs located within an area defined by an outer perimeter of the plurality of pairs of stacking feet but not where the first set of ribs are located, and a third set of ribs located outside the area of the first and second set of ribs, wherein each of the ribs of the first and second set of ribs are taller than each of the ribs of the third set of ribs.

According to the fourth aspect of the present invention each of the ribs of the first and second set of ribs is configured to support more weight than if each of the ribs of the first and second ribs were about the same lower height as the third set of ribs.

The fourth aspect of the present invention further comprises a plurality of handles configured to enable a user to grasp the pallet, wherein each of the handles is positioned on the base, and wherein the plurality of handles comprises: a left side wall handle located adjacent to the left side wall and wherein the left side wall handle is substantially symmetrically placed about the central longitudinal axis; a right side wall handle located adjacent to the right side wall and wherein the right side wall handle is substantially symmetrically placed about the central longitudinal axis; a pair of front side wall handles located adjacent to the front side wall; and a pair of rear side wall handles located adjacent to the rear side wall, wherein, each handle in each of the pair of front side wall handles and rear side wall handles are located substantially equidistant from an orthogonal longitudinal axis, wherein, the orthogonal longitudinal axis is substantially perpendicular to the central longitudinal axis, and is substantially equidistant from the left side wall and the right side wall.

According to the fourth aspect of the present invention each of the left side wall handles and the right side wall handles comprises: a plurality of handle strengthening ribs configured to strengthen the left side wall and right side wall respectively, and wherein each of the left side wall handle and right side wall handle further comprises: a plurality of finger recesses located on the left side wall and right side wall, respectively.

The fourth aspect of the present invention further comprises a left ledge located on the upper surface of the base over the left side wall; and a right ledge located on the upper surface of the base over the right side wall, wherein, the right ledge and the left ledge are configured to substantially prevent one or more of the packaged goods from sliding off the pallet.

According to the fourth aspect of the present invention each of the left ledge and the right ledge comprises: a raised

portion of the upper surface of the base in a semi-circular shape with a radius between about 0.120 and about 0.6 inches, and wherein each of the left ledge and the right ledge comprises: a raised portion of the upper surface of the base in a semi-circular shape with a radius of about 0.5 inches.

According to the fourth aspect of the present invention the packaged goods comprise a plurality of beverage trays, and each of the plurality of beverage trays is filled with one or more beverage bottles.

A fifth aspect of the present invention provides a method for transporting packaged goods on a pallet from a first location to a second location, the pallet comprising a base, the base including an upper surface and a lower surface, the pallet further comprising a front side wall, a right side wall, a rear side wall, and a left side wall, the pallet further comprising a plurality of handles and a plurality of stacking feet, the pallet having a central longitudinal axis running between the left side wall and the right side wall, and wherein each of the plurality of stacking feet is substantially equidistant from the central longitudinal axis, and wherein the plurality of stacking feet includes a first pair of stacking feet located adjacent to the left side wall of the pallet, and a second pair of stacking feet located adjacent the right side wall, and wherein, each stacking foot of the first and second pair of stacking feet includes an angled portion, and the method comprising: loading the packaged goods onto the pallet; positioning a first tine of a lifting mechanism adjacent to the left side wall and substantially parallel to the central longitudinal axis and positioning a second tine of a lifting mechanism adjacent to the right side wall and substantially parallel to the central longitudinal axis; lifting the loaded pallet using the lifting mechanism; and transporting the lifted loaded pallet from a first area to a second area by traversing an inclined ramp between the first and second areas, wherein the angled portions of the respective stacking feet enable the pallet to traverse the ramp in a substantially unimpeded manner.

According to the fifth aspect of the present invention the first area comprises a parking lot and the second area comprises one of a sidewalk and an interior floor of a retail store. According to the fifth aspect of the present invention the step of positioning further comprises: positioning the first tine of the lifting mechanism adjacent to an outer wall of each of the plurality of stacking feet located adjacent to the left side wall; and positioning the second tine of the lifting mechanism adjacent to an outer wall of each of the plurality of stacking feet located adjacent to the right side wall.

According to the fifth aspect of the present invention the step of loading further comprises: wrapping a material around the loaded pallet such that the pallet and the packed goods are held substantially together by the wrapped material, and the wrapping material is a plastic material that shrinks when exposed to elevated temperatures.

The fifth aspect of the present invention further comprises strapping the packaged goods loaded onto the pallet with a strap that is attached to the pallet jack, and wherein the strap is a retractable strap.

A sixth aspect of the present invention is provided for a pallet that has packaged goods placed thereupon, Accordingly, the sixth aspect of the present invention provides a pallet for use in transporting packaged goods, comprising: a front side wall, a right side wall, a rear side wall and a left side wall, the pallet having a central longitudinal axis running from the left side wall to the right side wall; a base and the packaged goods, the base being joined to each of the front side wall, right side wall, rear side wall, and left side wall such that each side wall is orthogonal to the base, the base including an upper surface and a lower surface, the upper surface being substantially planar, and the lower surface including a first set of ribs substantially perpendicular and adjacent to the central longitudinal axis of the pallet; and a plurality of pairs of stacking feet configured to support the base of the pallet, wherein each stacking foot in each pair of stacking feet is substantially equidistant from the central longitudinal axis of the pallet, and further wherein, each rib in the first set of ribs is configured to join a respective pair of stacking feet together to substantially inhibit the respective pair of stacking feet from spreading when the pallet rests upon the stacking feet.

According to the sixth aspect of the present invention, the pallet and packaged goods are configured to be placed in a retail environment, and in a manufacturing environment.

A seventh aspect of the present invention provides a pallet for use in transporting packaged goods, comprising: a front side wall, a right side wall, a rear side wall and a left side wall, the pallet having a central longitudinal axis running from the left side wall to the right side wall; a base configured to support the packaged goods, the base being joined to each of the front side wall, right side wall, rear side wall, and left side wall such that each side wall is orthogonal to the base, the base including an upper surface and a lower surface, the upper surface being substantially planar, and the lower surface including a first set of ribs substantially perpendicular and adjacent to the central longitudinal axis of the pallet; and a plurality of pairs of stacking feet configured to support the base of the pallet, wherein each stacking foot in each pair of stacking feet is substantially equidistant from the central longitudinal axis of the pallet, and further wherein, each rib in the first set of ribs is configured to join a respective pair of stacking feet together to substantially inhibit the respective pair of stacking feet from spreading when the pallet rests upon the stacking feet, and still further wherein at least one or more stacking feet further includes a lower step, wherein the lower step is located at a lower-most and outer-most portion of the at least one or more stacking feet, and wherein the lower step is configured to increase stability of the pallet by providing additional surface area to carry weight of packaged goods, and to increase a width of the at least one or more stacking feet of the pallet.

According to the seventh aspect of the present invention, wherein for each pair of stacking feet, a first stacking foot is located on a first side of the central longitudinal axis, and a second stacking foot is located on a second side of the central longitudinal axis, and wherein, the first stacking foot and the second stacking foot are each located substantially equi-distant from the central longitudinal axis of the pallet.

According to the seventh aspect of the present invention, the first set of ribs comprises: a plurality of substantially V-shaped ribs, wherein each of the substantially V-shaped ribs forms a V-shaped angle, and wherein the V-shaped angle formed by each of the substantially V-shaped ribs measures between about 70° and about 110°.

According to the seventh aspect of the present invention, the V-shaped angle formed by each of the substantially V-shaped ribs measures between about 80° and about 100°, or the V-shaped angle formed by each of the substantially V-shaped ribs measures about 90°.

According to the seventh aspect of the present invention, the plurality of pairs of stacking feet comprises three pairs of stacking feet.

According to the seventh aspect of the present invention, the pallet further comprises a plurality of handles configured to enable a user to grasp the pallet, wherein each of the handles is positioned on the base, and wherein the plurality of handles comprises: a left side wall handle located adjacent to the left side wall and wherein the left side wall handle is

substantially symmetrically placed about the central longitudinal axis; a right side wall handle located adjacent to the right side wall and wherein the right side wall handle is substantially symmetrically placed about the central longitudinal axis; a pair of front side wall handles located adjacent to the front side wall; and a pair of rear side wall handles located adjacent to the rear side wall, wherein, each handle in each of the pair of front side wall handles and rear side wall handles are located substantially equidistant from an orthogonal longitudinal axis, wherein, the orthogonal longitudinal axis is substantially perpendicular to the central longitudinal axis, and is substantially equidistant from the left side wall and the right side wall.

According to the seventh aspect of the present invention, each of the left side wall handles and the right side wall handles comprises: a plurality of handle strengthening ribs configured to strengthen the left side wall and right side wall respectively, and further wherein each of the left side wall handle and right side wall handle further comprises: a plurality of finger recesses located on the left side wall and right side wall, respectively.

According to the seventh aspect of the present invention, the pallet further comprises a left ledge located on the upper surface of the base over the left side wall; and a right ledge located on the upper surface of the base over the right side wall, wherein, the right ledge and the left ledge are configured to substantially prevent one or more of the packaged goods from sliding off the pallet. According to the seventh aspect of the present invention, each of the left ledge and the right ledge comprises: a raised portion of the upper surface of the base in a semi-circular shape with a radius between about 0.120 and about 0.6 inches.

According to the seventh aspect of the present invention, each of the left ledge and the right ledge comprises: a raised portion of the upper surface of the base in a semi-circular shape with a radius of about 0.5 inches, and the packaged goods comprise a plurality of beverage trays.

According to the seventh aspect of the present invention, each of the plurality of beverage trays is filled with one or more beverage bottles, and the pallet further comprises one or more recesses located on the upper surface of the base; and a tacky material positioned within the one or more recesses, wherein the tacky material is configured to substantially prevent one or more of the packaged goods from sliding off the pallet.

According to the seventh aspect of the present invention, the pallet further comprises an upper step, wherein the upper step is located on an outer-most portion of at least one of the stacking feet, and wherein the upper step is located at about halfway between the lower-most portion of the stacking foot and a lower surface of the base of the pallet, and further wherein the upper step is configured to provide a recess area for the lower step when an upper substantially similar pallet is stacked and nested on a lower pallet, such that about 50% of a height of the substantially similar upper pallet is nested within the lower pallet.

According to an eighth aspect of the present invention, a pallet for use in transporting packaged goods is provided comprising: a front side wall, a right side wall, a rear side wall and a left side wall, the pallet having a central longitudinal axis running from the left side wall to the right side wall; a base configured to support the packaged goods, the base being joined to each of the front side wall, right side wall, rear side wall, and left side wall such that each side wall is orthogonal to the base, the base including an upper surface and a lower surface, the upper surface being substantially planar, and the lower surface including a first set of ribs substantially perpendicular and adjacent to the central longitudinal axis of the pallet; and a plurality of pairs of stacking feet configured to support the base of the pallet, wherein a first pair of stacking feet are located adjacent the left side wall, a second pair of stacking feet are located adjacent the right side wall, and a third pair of stacking feet are located between the first pair of stacking feet and second pair of stacking feet, and wherein each of the stacking feet in the first pair of stacking feet includes a substantially horizontal floor portion and an angled portion originating from the substantially horizontal floor portion, and wherein, the angled portion is formed at an angle in the range of about 5° to about 20° with respect to a plane of the substantially horizontal portion of the first pair of stacking feet, such that a plane of the angled portion of the first pair of stacking feet intersects a plane of the base of the pallet, and further wherein each of the stacking feet in the second pair of stacking feet includes a substantially horizontal floor portion and an angled portion originating from the substantially horizontal floor portion, wherein, the angled portion is formed at an angle in the range of about 10° to about 20° with respect to a plane of the substantially horizontal portion of the second pair of stacking feet, such that a plane of the angled portion of the second pair of stacking feet intersects a plane of the base of the pallet, and further wherein, the angled portions of each of the first pair of stacking feet and second stacking feet are configured to enable the pallet to be transported over an inclined ramp without substantially interfering with the inclined ramp, and still further wherein at least one or more of the stacking feet further includes a lower step, wherein the lower step is located at a lower-most and outer-most portion of the at least one or more stacking feet, and wherein the lower step is configured to increase stability of the pallet by providing additional surface area to carry weight of packaged goods, and to increase a width of the at least one or more stacking feet of the pallet.

According to the eighth aspect of the present invention, the inclined ramp is placed between a street, and an uppermost portion of a curb alongside the street, and wherein the angled portion of both the first pair of stacking feet and second pair of stacking feet is formed at an angle of about 15°.

According to the eighth aspect of the present invention, the packaged goods comprise a plurality of beverage trays, and each of the plurality of beverage trays is filled with one or more beverage bottles. According to the eighth aspect of the present invention, the pallet further comprises a plurality of handles configured to enable a user to grasp the pallet, wherein each of the handles is positioned on the base, and wherein the plurality of handles comprises: a left side wall handle located adjacent to the left side wall and wherein the left side wall handle is substantially symmetrically placed about the central longitudinal axis; a right side wall handle located adjacent to the right side wall and wherein the right side wall handle is substantially symmetrically placed about the central longitudinal axis; a pair of front side wall handles located adjacent to the front side wall; and a pair of rear side wall handles located adjacent to the rear side wall, wherein, each handle in each of the pair of front side wall handles and rear side wall handles are located substantially equidistant from an orthogonal longitudinal axis, wherein, the orthogonal longitudinal axis is substantially perpendicular to the central longitudinal axis, and is substantially equidistant from the left side wall and the right side wall.

According to the eighth aspect of the present invention, each of the left side wall handles and the right side wall handles comprises: a plurality of handle strengthening ribs configured to strengthen the left side wall and right side wall respectively.

According to the eighth aspect of the present invention, each of the left side wall handle and right side wall handle further comprises: a plurality of finger recesses located on the left side wall and right side wall, respectively. According to the eighth aspect of the present invention, the pallet further comprises a left ledge located on the upper surface of the base over the left side wall; and a right ledge located on the upper surface of the base over the right side wall, wherein, the right ledge and the left ledge are configured to substantially prevent one or more of the packaged goods from sliding off the pallet.

According to the eighth aspect of the present invention, each of the left ledge and the right ledge comprises: a raised portion of the upper surface of the base in a semi-circular shape with a radius between about 0.120 and about 0.6 inches, and further each of the left ledge and the right ledge comprises: a raised portion of the upper surface of the base in a semi-circular shape with a radius of about 0.5 inches.

According to the eighth aspect of the present invention, the packaged goods comprise a plurality of beverage trays, and each of the plurality of beverage trays is filled with one or more beverage bottles.

According to the eighth aspect of the present invention, the pallet further comprises one or more recesses located on the upper surface of the base; and a tacky material positioned within the one or more recesses, wherein the tacky material is configured to substantially prevent one or more of the packaged goods from sliding off the pallet.

According to the eighth aspect of the present invention, each stacking foot in each pair of stacking feet comprises: an interior portion configured to accept a corresponding stacking foot from an upper, substantially similar pallet, when the upper, substantially similar pallet is stacked upon a lower pallet, and wherein the interior portion comprises a plurality of ribs configured to substantially prevent the corresponding stacking foot from the substantially similar upper pallet from becoming wedged into the interior portions of each corresponding stacking foot of the lower pallet, and further wherein, the ribs in the first pair of stacking feet and the second pair of stacking feet substantially support the substantially horizontal floor portion and the angled portion of each of the corresponding stacking feet of the upper substantially similar pallet, such that bending of the upper, substantially similar pallet is substantially prevented about the first pair of stacking feet and second pair of stacking feet of the upper, substantially similar pallet, thereby substantially preventing premature failure of the upper, substantially similar pallet.

According to the eighth aspect of the present invention, the pallet further comprises an upper step, wherein the upper step is located on an outer-most portion of at least one of the stacking feet, and wherein the upper step is located at about halfway between the lower-most portion of the stacking foot and a lower surface of the base of the pallet, and further wherein the upper step is configured to provide a recess area for the lower step when an upper substantially similar pallet is stacked and nested on a lower pallet, such that about 50% of a height of the substantially similar upper pallet is nested within the lower pallet.

According to a ninth aspect of the present invention, a pallet for use in transporting packaged goods is provided, comprising: a front side wall, a right side wall, a rear side wall and a left side wall, the pallet having a central longitudinal axis running from the left side wall to the right side wall; a base configured to support the packaged goods, the base being joined to each of the front side wall, right side wall, rear side wall, and left side wall such that each side wall is orthogonal to the base, the base including an upper surface and a lower surface, the upper surface being substantially planar, and the lower surface including a first set of ribs substantially perpendicular and adjacent to the central longitudinal axis of the pallet; and a plurality of pairs of stacking feet configured to support the base of the pallet, wherein each stacking foot in each pair of stacking feet is substantially equidistant from the central longitudinal axis of the pallet, thereby forming a set of front side wall stacking feet and a set of rear side wall stacking feet, and still further wherein at least one or more of the stacking feet further includes a lower step, wherein the lower step is located at a lower-most and outer-most portion of the at least one or more stacking feet, and wherein the lower step is configured to increase stability of the pallet by providing additional surface area to carry weight of packaged goods, and to increase a width of the at least one or more stacking feet of the pallet, and further wherein, the set of front side wall stacking feet are located at a predetermined distance from the front side wall, and the set of rear side wall stacking feet are located at a predetermined distance from the rear side wall, such that a first tine from a lifting device can be located adjacent the set of front side wall stacking feet, and a second tine from a lifting device can be located adjacent the set of rear side wall stacking feet, such that each of the first tine and the second tine is substantially parallel to the central longitudinal axis of the pallet, thereby further enabling the pallet to be lifted by the first and second tines.

According to the ninth aspect of the present invention, the location of the first and second tines when the pallet is lifted enables the pallet to be transported with substantial stability when loaded with the packaged goods. According to the ninth aspect of the present invention, the pallet further comprises a plurality of handles configured to enable a user to grasp the pallet, wherein each of the handles is positioned on the base.

According to the ninth aspect of the present invention, the plurality of handles comprises: a left side wall handle located adjacent to the left side wall and wherein the left side wall handle is substantially symmetrically placed about the central longitudinal axis; a right side wall handle located adjacent to the right side wall and wherein the right side wall handle is substantially symmetrically placed about the central longitudinal axis; a pair of front side wall handles located adjacent to the front side wall; and a pair of rear side wall handles located adjacent to the rear side wall, wherein, each handle in each of the pair of front side wall handles and rear side wall handles are located substantially equidistant from an orthogonal longitudinal axis, wherein, the orthogonal longitudinal axis is substantially perpendicular to the central longitudinal axis, and is substantially equidistant from the left side wall and the right side wall.

According to the ninth aspect of the present invention, each of the left side wall handles and the right side wall handles comprises: a plurality of handle strengthening ribs configured to strengthen the left side wall and right side wall respectively.

According to the ninth aspect of the present invention, each of the left side wall handle and right side wall handle further comprises: a plurality of finger recesses located on the left side wall and right side wall, respectively.

According to the ninth aspect of the present invention, the pallet further comprises a left ledge located on the upper surface of the base over the left side wall; and a right ledge located on the upper surface of the base over the right side wall, wherein, the right ledge and the left ledge are configured to substantially prevent one or more of the packaged goods from sliding off the pallet.

According to the ninth aspect of the present invention, each of the left ledge and the right ledge comprises: a raised portion of the upper surface of the base in a semi-circular shape with a radius between about 0.120 and about 0.6 inches, and fur-

ther each of the left ledge and the right ledge comprises: a raised portion of the upper surface of the base in a semi-circular shape with a radius of about 0.5 inches.

According to the ninth aspect of the present invention, the packaged goods comprise a plurality of beverage trays, and further each of the plurality of beverage trays is filled with one or more beverage bottles.

According to the ninth aspect of the present invention, the pallet further comprises one or more recesses located on the upper surface of the base; and a tacky material positioned within the one or more recesses, wherein the tacky material is configured to substantially prevent one or more of the packaged goods from sliding off the pallet.

According to the ninth aspect of the present invention, the pallet further comprises an upper step, wherein the upper step is located on an outer-most portion of at least one of the stacking feet, and wherein the upper step is located at about halfway between the lower-most portion of the stacking foot and a lower surface of the base of the pallet, and further wherein the upper step is configured to provide a recess area for the lower step when an upper substantially similar pallet is stacked and nested on a lower pallet, such that about 50% of a height of the substantially similar upper pallet is nested within the lower pallet.

According to a tenth aspect of the present invention, a pallet for use in transporting packaged goods is provided, comprising: a front side wall, a right side wall, a rear side wall and a left side wall, the pallet having a central longitudinal axis running from the left side wall to the right side wall; a base configured to support the packaged goods, the base being joined to each of the front side wall, right side wall, rear side wall, and left side wall such that each side wall is orthogonal to the base; a plurality of pairs of stacking feet configured to support the base of the pallet, wherein each stacking foot in each pair of stacking feet is substantially equidistant from the central longitudinal axis of the pallet, and still further wherein at least one or more of the stacking feet further includes a lower step, wherein the lower step is located at a lower-most and outer-most portion of the at least one or more stacking feet, and wherein the lower step is configured to increase stability of the pallet by providing additional surface area to carry weight of packaged goods, and to increase a width of the at least one or more stacking feet of the pallet, and further wherein, the base including an upper surface and a lower surface, the upper surface being substantially planar, and the lower surface including a first set of ribs substantially perpendicular and adjacent to the central longitudinal axis of the pallet, a second set of ribs located within an area defined by an outer perimeter of the plurality of pairs of stacking feet but not where the first set of ribs are located, and a third set of ribs located outside the area of the first and second set of ribs, wherein each of the ribs of the first and second set of ribs are taller than each of the ribs of the third set of ribs.

According to the tenth aspect of the present invention, each of the ribs of the first and second set of ribs is configured to support more weight than if each of the ribs of the first and second ribs were about the same lower height as the third set of ribs.

According to the tenth aspect of the present invention, the pallet further comprises a plurality of handles configured to enable a user to grasp the pallet, wherein each of the handles is positioned on the base, and wherein the plurality of handles comprises: a left side wall handle located adjacent to the left side wall and wherein the left side wall handle is substantially symmetrically placed about the central longitudinal axis; a right side wall handle located adjacent to the right side wall and wherein the right side wall handle is substantially symmetrically placed about the central longitudinal axis; a pair of front side wall handles located adjacent to the front side wall; and a pair of rear side wall handles located adjacent to the rear side wall, wherein, each handle in each of the pair of front side wall handles and rear side wall handles are located substantially equidistant from an orthogonal longitudinal axis, wherein, the orthogonal longitudinal axis is substantially perpendicular to the central longitudinal axis, and is substantially equidistant from the left side wall and the right side wall.

According to the tenth aspect of the present invention, each of the left side wall handles and the right side wall handles comprises: a plurality of handle strengthening ribs configured to strengthen the left side wall and right side wall respectively.

According to the tenth aspect of the present invention, each of the left side wall handle and right side wall handle further comprises: a plurality of finger recesses located on the left side wall and right side wall, respectively.

According to the tenth aspect of the present invention, the pallet further comprises a left ledge located on the upper surface of the base over the left side wall; and a right ledge located on the upper surface of the base over the right side wall, wherein, the right ledge and the left ledge are configured to substantially prevent one or more of the packaged goods from sliding off the pallet.

According to the tenth aspect of the present invention, each of the left ledge and the right ledge comprises: a raised portion of the upper surface of the base in a semi-circular shape with a radius between about 0.120 and about 0.6 inches, and further each of the left ledge and the right ledge comprises: a raised portion of the upper surface of the base in a semi-circular shape with a radius of about 0.5 inches.

According to the tenth aspect of the present invention, the packaged goods comprise a plurality of beverage trays, and further each of the plurality of beverage trays is filled with one or more beverage bottles.

According to the tenth aspect of the present invention, the pallet further comprises an upper step, wherein the upper step is located on an outer-most portion of at least one of the stacking feet, and wherein the upper step is located at about halfway between the lower-most portion of the stacking foot and a lower surface of the base of the pallet, and further wherein the upper step is configured to provide a recess area for the lower step when an upper substantially similar pallet is stacked and nested on a lower pallet, such that about 50% of a height of the substantially similar upper pallet is nested within the lower pallet.

According to an eleventh aspect of the present invention, a method for transporting packaged goods on a pallet from a first location to a second location is provided, wherein the pallet comprises a base, the base including an upper surface and a lower surface, the pallet further comprising a front side wall, a right side wall, a rear side wall, and a left side wall, the pallet further comprising a plurality of handles and a plurality of stacking feet, the pallet having a central longitudinal axis running between the left side wall and the right side wall, and wherein each of the plurality of stacking feet is substantially equidistant from the central longitudinal axis, and wherein the plurality of stacking feet includes a first pair of stacking feet located adjacent to the left side wall of the pallet, and a second pair of stacking feet located adjacent the right side wall, and wherein, each stacking foot of the first and second pair of stacking feet includes an angled portion, and still further wherein at least one or more of the stacking feet further includes a lower step, wherein the lower step is located at a lower-most and outer-most portion of the at least one or more stacking feet, and wherein the lower step is configured

to increase stability of the pallet by providing additional surface area to carry weight of packaged goods, and to increase a width of the at least one or more stacking feet of the pallet, the method comprising: loading the packaged goods onto the pallet; positioning a first tine of a lifting mechanism adjacent to the left side wall and substantially parallel to the central longitudinal axis and positioning a second tine of a lifting mechanism adjacent to the right side wall and substantially parallel to the central longitudinal axis; lifting the loaded pallet using the lifting mechanism; and transporting the lifted loaded pallet from a first area to a second area by traversing an inclined ramp between the first and second areas, wherein the angled portions of the respective stacking feet enable the pallet to traverse the ramp in a substantially unimpeded manner.

According to the eleventh aspect of the present invention, the first area comprises a parking lot and the second area comprises one of a sidewalk and an interior floor of a retail store.

According to the eleventh aspect of the present invention, the step of positioning further comprises: positioning the first tine of the lifting mechanism adjacent to an outer wall of each of the plurality of stacking feet located adjacent to the left side wall; and positioning the second tine of the lifting mechanism adjacent to an outer wall of each of the plurality of stacking feet located adjacent to the right side wall.

According to the eleventh aspect of the present invention, the step of loading further comprises: wrapping a material around the loaded pallet such that the pallet and the packed goods are held substantially together by the wrapped material.

According to the eleventh aspect of the present invention, the wrapping material is a plastic material that shrinks when exposed to elevated temperatures.

According to the eleventh aspect of the present invention, the method further comprises strapping the packaged goods loaded onto the pallet with a strap that is attached to the pallet jack, and wherein the strap is a retractable strap.

According to the eleventh aspect of the present invention, the pallet further comprises an upper step, wherein the upper step is located on an outer-most portion of at least one of the stacking feet, and wherein the upper step is located at about halfway between the lower-most portion of the stacking foot and a lower surface of the base of the pallet, and further wherein the upper step is configured to provide a recess area for the lower step when an upper substantially similar pallet is stacked and nested on a lower pallet, such that about 50% of a height of the substantially similar upper pallet is nested within the lower pallet.

According to a twelfth aspect of the present invention, a pallet for use in transporting packaged goods is provided, comprising: a front side wall, a right side wall, a rear side wall and a left side wall, the pallet having a central longitudinal axis running from the left side wall to the right side wall; a base and the packaged goods, the base being joined to each of the front side wall, right side wall, rear side wall, and left side wall such that each side wall is orthogonal to the base, the base including an upper surface and a lower surface, the upper surface being substantially planar, and the lower surface including a first set of ribs substantially perpendicular and adjacent to the central longitudinal axis of the pallet; and a plurality of pairs of stacking feet configured to support the base of the pallet, wherein each stacking foot in each pair of stacking feet is substantially equidistant from the central longitudinal axis of the pallet, and still further wherein at least one or more of the stacking feet further includes a lower step, wherein the lower step is located at a lower-most and outer-most portion of the at least one or more stacking feet, and wherein the lower step is configured to increase stability of the pallet by providing additional surface area to carry weight of packaged goods, and to increase a width of the at least one or more stacking feet of the pallet, and further wherein, each rib in the first set of ribs is configured to join a respective pair of stacking feet together to substantially inhibit the respective pair of stacking feet from spreading when the pallet rests upon the stacking feet.

According to the twelfth aspect of the present invention, the pallet and packaged goods are configured to be placed in a retail environment, and further wherein the pallet and packaged goods are configured to be placed in a manufacturing environment.

According to the twelfth aspect of the present invention, the pallet further comprises an upper step, wherein the upper step is located on an outer-most portion of at least one of the stacking feet, and wherein the upper step is located at about halfway between the lower-most portion of the stacking foot and a lower surface of the base of the pallet, and further wherein the upper step is configured to provide a recess area for the lower step when an upper substantially similar pallet is stacked and nested on a lower pallet, such that about 50% of a height of the substantially similar upper pallet is nested within the lower pallet.

BRIEF DESCRIPTION OF THE DRAWINGS

The novel features and advantages of the present invention will best be understood by reference to the detailed description of the preferred embodiments which follows, when read in conjunction with the accompanying drawings, in which:

FIG. **1** illustrates a prior art dolly.

FIG. **2** illustrates a top isometric view of a pallet according to an embodiment of the present invention.

FIG. **3** illustrates a front view of the pallet shown in FIG. **2**.

FIG. **4** illustrates a right side view of the pallet shown in FIG. **2**.

FIG. **5** illustrates a top view of the pallet shown in FIG. **2**.

FIG. **6** illustrates a bottom view of the pallet shown in FIG. **2**.

FIG. **7** illustrates a bottom isometric view of the pallet shown in FIG. **2**.

FIG. **8** illustrates a close-up isometric view of an interior portion of a stacking foot of the pallet shown in FIG. **2**.

FIG. **9** illustrates a front partial view along line A-A of the pallet shown in FIG. **5**.

FIG. **10** illustrates a right partial side view along line B-B of the pallet shown in FIG. **5**.

FIG. **11** illustrates a front partial view of an upper pallet nested within a lower similar pallet according to an embodiment of the present invention, wherein the partial view of the upper and lower pallets is taken along line C-C of the pallet shown in FIG. **5**.

FIG. **12** illustrates a side partial view of an upper pallet nested within a lower similar pallet according to an embodiment of the present invention, wherein the partial view of the upper and lower pallets is taken along line B-B of the pallet shown in FIG. **5**.

FIG. **13** illustrates a left side view of a pallet jack loaded with the pallet shown in FIG. **2** according to an embodiment of the present invention.

FIG. **14** illustrates a front view of a pallet jack loaded with the pallet shown in FIG. **2** according to an embodiment of the present invention.

FIG. **15** illustrates a front isometric view of a pallet jack loaded with the pallet shown in FIG. **2** according to an embodiment of the present invention.

FIG. **16** illustrates the pallet shown in FIG. **2** loaded with empty trays.

FIG. **17** illustrates the pallet shown in FIG. **2** loaded with beverage trays that are filled with beverage bottles.

FIG. **18** illustrates delivery of a pallet loaded with beverage bottles from a first surface to a second surface using a ramp according to an embodiment of the present invention.

FIG. **19** illustrates a close-up view of a loaded pallet approaching a ramp to deliver beverage bottles to a retail location according to an embodiment of the present invention.

FIG. **20** illustrates a front side view of an upper pallet stacked upon a lower, similar pallet according to an embodiment of the present invention.

FIG. **21** illustrates a side view of the upper and lower pallets shown in FIG. **20**.

FIG. **22** illustrates a top isometric view of a pallet according to an alternate embodiment of the present invention.

FIG. **23** illustrates a front view of the pallet shown in FIG. **22**.

FIG. **24** illustrates a right side view of the pallet shown in FIG. **22**.

FIG. **25** illustrates a top view of the pallet shown in FIG. **22**.

FIG. **26** illustrates a bottom view of the pallet shown in FIG. **22**.

FIG. **27** illustrates a bottom isometric view of the pallet shown in FIG. **22**.

FIG. **28** illustrates a right partial side view along line D-D of the pallet shown in FIG. **25**.

FIG. **29** illustrates a close-up bottom isometric view of an inner stacking foot of the pallet shown in FIG. **22**.

FIG. **30** illustrates a close-up bottom isometric view of an outer stacking foot of the pallet shown in FIG. **22**.

DETAILED DESCRIPTION OF THE PREFERRED EMBODIMENTS

The various features of the preferred embodiments will now be described with reference to the drawing figures, in which like parts are identified with the same reference characters. The following description of the presently contemplated best mode of practicing the invention is not to be taken in a limiting sense, but is provided merely for the purpose of describing the general principles of the invention.

I. Summary of Features of Package Goods Pallet **100** and **500**

According to a first aspect of the present invention with respect to FIG. **2**, a pallet **100** is provided comprising stacking, strengthening, transportation and carrying features according to different embodiments of the present invention.

Pallet **100** is provided for shipping and displaying of packaged goods. Packaged goods can include virtually any type of retail, wholesale or raw material goods/products that can be packaged for use or sale. Packaged goods for use or sale are loaded onto pallet **100** that can be placed in retail locations, i.e., stores, of any type or size, or manufacturing facilities if the prepackaged goods comprise packaged raw materials. The term "packaged" includes all different types of packages, including, for example, cardboard boxes, wooden crates, plastic or paper wrapping, any other types of enclosures, burlap, string/rope and generally anything that can be used to contain goods. "Packaged goods", therefore, according to exemplary embodiments of the present invention, includes nearly any type of manufactured good or raw material, that can be placed on pallet **100** regardless of whether it is wrapped, packaged, or restrained by any type of material. Pallet **100** with empty trays is shown in FIG. **16**, and FIG. **17** illustrates pallet **100** with several beverage trays **200** filled with beverage bottles **300**, according to exemplary embodiments of the present invention.

Pallet **100** is described herein for use in shipping and displaying beverage trays according to a preferred embodiment of the present invention. As those of ordinary skill in the art of the present invention can appreciate, and as described above, pallet **100** can be used to ship and display virtually any type of good and/or raw material. Therefore, the ensuing discussion is one merely for illustrative purposes and should not be construed to be limiting the exemplary embodiments of the present invention in any manner whatsoever.

Pallet **100** is provided for shipping and displaying of beverage trays **200**, among other items, wherein pallet **100** comprises a plurality of stacking feet **8**, **10** joined together by a plurality of angled ribs **40** to substantially prevent or inhibit spreading of stacking feet **8**, **10** due to high weight loads. Pallet **100** further comprises a plurality of handles **12***a, b* that include handle-strengthening areas **44** and finger recesses **42** to increase the strength and lifting ergonomics of pallet **100**, and an angled surface **30** on the bottom of stacking feet **8***a-d* to facilitate transporting of a loaded pallet **100** from a delivery vehicle to a retail center over certain obstacles.

Pallet **500** is substantially similar in many respects to pallet **100**. Similar features of pallet **500** have been numbered similarly as in pallet **100**, but with the prefix "5" in front of the reference number. For example, left and right handles **512***a, b* are substantially similar to left and right handles **12***a, b*, and so on.

According to a second embodiment of the present invention with respect to FIGS. **22-30**, a pallet **500** is provided comprising stacking, strengthening, transportation and carrying features according to different embodiments of the present invention.

Pallet **500** is provided for shipping and displaying of packaged goods. Packaged goods can include virtually any type of retail, wholesale or raw material goods/products that can be packaged for use or sale. Packaged goods for use or sale are loaded onto pallet **500** that can be placed in retail locations, i.e., stores, of any type or size, or manufacturing facilities if the prepackaged goods comprise packaged raw materials. The term "packaged" includes all different types of packages, including, for example, cardboard boxes, wooden crates, plastic or paper wrapping, any other types of enclosures, burlap, string/rope and generally anything that can be used to contain goods. "Packaged goods", therefore, according to exemplary embodiments of the present invention, includes nearly any type of manufactured good or raw material, that can be placed on pallet **500** regardless of whether it is wrapped, packaged, or restrained by any type of material. Pallet **500** can be used to transport empty trays as pallet **100** is shown in FIG. **16**, and similarly, can be used with beverage trays **200** as shown in FIG. **17** with pallet **100**, according to additional exemplary embodiments of the present invention.

Pallet **500** is described herein for use in shipping and displaying beverage trays according to a preferred embodiment of the present invention. As those of ordinary skill in the art of the present invention can appreciate, and as described above, pallet **500** can be used to ship and display virtually any type of good and/or raw material. Therefore, the ensuing discussion is one merely for illustrative purposes and should not be construed to be limiting the exemplary embodiments of the present invention in any manner whatsoever.

Pallet **500** is provided for shipping and displaying of beverage trays **200**, among other items, wherein pallet **500** com-

prises a plurality of stacking feet **508**, **510** joined together by a plurality of angled ribs **540** to substantially prevent or inhibit spreading of stacking feet **508**, **510** due to high weight loads. Pallet **500** further comprises a plurality of handles **512***a, b* that include handle-strengthening areas **544** and finger recesses **542** to increase the strength and lifting ergonomics of pallet **500**, and an angled surface **530** on the bottom of stacking feet **8***a-d* to facilitate transporting of a loaded pallet **500** from a delivery vehicle to a retail center over certain obstacles.

II. Pallet **100**—General Description

Referring now to the drawings, a pallet **100** with a plurality of stacking feet **8**, **10** is shown in FIG. **2**. Pallet **100** comprises a base **2**, and a plurality of stacking feet **8**, **10**. Base **2** comprises front side wall **18**, a right side wall **20**, a rear side wall **22**, and a left side wall **24**. Preferably, the right side wall **20** and left side wall **24** are substantially mirror images of one another, and front side wall **18** and rear side wall **22** are also substantially mirror images of each other. Pallet **100** further comprises left and right handles **12***a, b*, and front and rear handles **14***a, b*, and **16***a, b*. Base **2** of pallet **100** further includes a substantially smooth upper surface **4** and lower surface **6**. Base upper surface **4** of base **2** further includes a plurality of base surface recesses **56** for locating rubber or other tacky or sticky material **58**. Tacky material **58** substantial prevents or inhibits beverage trays **200** from sliding off base upper surface **4**. Base lower surface **6** comprises a plurality of perimeter ribs **36**, a plurality of central ribs **38**, as well as a plurality of angled V-shaped ribs (V-ribs) **40**. V-ribs **40**, according to a preferred embodiment of the present invention, keep stacking feet **8***a-d* and **10***a, b* from spreading when pallet **100** is loaded with a plurality of beverage trays **200** partially or fully filled with beverage bottles **300**.

Stacking feet **8***a-d* comprise a plurality of stacking feet walls **32**, stacking feet floor **34** and a stacking foot angled surface **30**. Stacking feet **10***a, b* comprise a plurality of stacking feet walls **32**, and stacking feet floor **34**. As best seen in FIGS. **2** and **5**, and which shall be described in greater detail below, stacking feet **8***a-d* comprise outer stacking feet recess area **46***a-d*, and stacking feet **10***a, b* comprise inner stacking feet recess areas **48***a, b*. Both inner and outer stacking feet recess areas **48**, **46** comprise a plurality of stacking feet inner ribs **54** according to a preferred embodiment of the present invention. Pallet **100** can be stacked upon another like, substantially similar pallet **100**. When so stacked, because of pallet's **100** symmetry, there is substantially no difference between an upper pallet **100'** stacked upon a lower pallet **100** when front side wall **18'** of upper pallet **100'** is facing the same direction as front side wall **18** of lower pallet **100**, or when it is facing rear side wall **22** of lower pallet **100**. The former configuration is referred to as a "0°" stacking orientation, and the latter configuration is referred to as the "180°" stacking orientation. Pallet **100** hereof can advantageously be constructed by injection molding whereby the entire pallet **100** may be formed as a unitary article from a synthetic resin such as polyethylene or high density polyethylene (HDPE). Other materials that can be used to manufacture pallet **100** comprise polypropylene. According to an exemplary embodiment of the present invention, pallet **100** is between about 15" to about 21" in width, between about 45" and 50" in length, and between about 7" and 10" in height. According to a preferred embodiment of the present invention, pallet **100** is about 18" in width, 47.5" in length, and about 8.5" in height. Pallet **100** shall now be described in greater detail according to the different embodiments of the present invention.

A. Pallet **500**—General Description

Referring now to the drawings, a pallet **500** according to an alternate embodiment of the present invention is displayed with a plurality of stacking feet **508**, **510** is shown in FIG. **22**. Pallet **500** comprises a base **502**, and a plurality of stacking feet **508**, **510**. Base **502** comprises front side wall **518**, a right side wall **520**, a rear side wall **522**, and a left side wall **524**. Preferably, the right side wall **520** and left side wall **524** are substantially mirror images of one another, and front side wall **518** and rear side wall **522** are also substantially mirror images of each other. Pallet **500** further comprises left and right handles **512***a, b*, and front and rear handles **514***a, b*, and **516***a, b*. Base **502** of pallet **500** further includes a substantially smooth upper surface **504** and lower surface **506**. Base upper surface **504** of base **502** further includes a plurality of base surface recesses **556** for locating rubber or other tacky or sticky material **558**. Tacky material **558** substantial prevents or inhibits beverage trays **200** from sliding off base upper surface **504**. Base lower surface **506** comprises a plurality of perimeter ribs **536**, a plurality of central ribs **538**, as well as a plurality of angled V-shaped ribs (V-ribs) **540**. V-ribs **540**, according to a preferred embodiment of the present invention, keep stacking feet **508***a-d* and **510***a, b* from spreading when pallet **500** is loaded with a plurality of beverage trays **200** partially or fully filled with beverage bottles **300**.

Stacking feet **508***a-d* comprise a plurality of stacking feet walls **532**, stacking feet floor **534** and a stacking foot angled surface **530**. Stacking feet **510***a, b* comprise a plurality of stacking feet walls **532**, and stacking feet floor **534**. As best seen in FIGS. **22** and **25**, stacking feet **508***a-d* comprise outer stacking feet recess area **546***a-d*, and stacking feet **510***a, b* comprise inner stacking feet recess areas **548***a, b*. Both inner and outer stacking feet recess areas **548**, **546** comprise a plurality of stacking feet inner ribs **554** according to a preferred embodiment of the present invention. Pallet **500** can be stacked upon another like, substantially similar pallet **500**. When so stacked, because of pallet's **500** symmetry, there is substantially no difference between an upper pallet **500'** stacked upon a lower pallet **500** when front side wall **518'** of upper pallet **500'** is facing the same direction as front side wall **518** of lower pallet **500**, or when it is facing rear side wall **522** of lower pallet **500**. The former configuration is referred to as a "0°" stacking orientation, and the latter configuration is referred to as the "180°" stacking orientation. Pallet **500** hereof can advantageously be constructed by injection molding whereby the entire pallet **500** may be formed as a unitary article from a synthetic resin such as polyethylene or high density polyethylene (HDPE). Other materials that can be used to manufacture pallet **500** comprise polypropylene. According to an exemplary embodiment of the present invention, pallet **500** is between about 15" to about 21" in width, between about 45" and 50" in length, and between about 7" and 10" in height. According to a preferred embodiment of the present invention, pallet **500** is about 18" in width, 47.5" in length, and about 8.5" in height. A detailed description of pallet **500** shall be omitted for the purpose of brevity and clarity, as pallet **100** and pallet **500** contain substantially similar parts and components; however, a detailed description of those components that are not substantially similar will be discussed in reference to FIGS. **22-30**, infra.

B. Base **2**.

1. General Description.

Referring now to FIGS. **2-7**, base **2** is shown, comprising front wall **18**, right side wall **20**, rear side wall **22**, left side wall **24**, base upper surface **4**, base lower surface **6**. Front wall **18** is substantially parallel to rear side wall **22**, and right side wall **20** is substantially parallel to left side wall **24**. Base **2** is

preferably substantially planar and smooth, aside from those areas noted below, and base upper surface **4** and base lower surface **6** are substantially parallel to each other, and substantially orthogonal to front wall **18**, right side wall **20**, rear side wall **22**, left side wall **24**, which are also substantially orthogonal to each other.

Front side wall **18** and rear side wall **20** are substantially similar in terms of height and length, and comprise certain similar features. Right side wall **20** and rear side wall **24** are substantially similar in terms of height and length, and comprise certain similar features. Pallet **100** is preferably substantially symmetrical about a central longitudinal axis A-A as shown in FIG. **2**, and is also preferably substantially symmetrical about a central orthogonal axis B-B also as shown in FIG. **2**.

2. Base Surface Recess **56** and Ledge **26**.

Upper surface **4** of base **2** is substantially planar and smooth, aside from base surface recesses **56**, and left, right handles **12***a, b*, front handles **14***a, b*, and rear handles **16***a, b*. Base surface recesses **56** are formed to hold within them a tacky or sticky material (tacky material) **58**, preferably rubber. Tacky material **58** substantially prevents or inhibits empty or loaded beverage containers **200** from sliding off base upper surface **4** when placed thereupon. Although shown as rectangular in shape, and substantially uniform in size and alignment, those of ordinary skill in the art of the present invention can appreciate that base surface recesses **56** can be formed in a variety of different shapes (circular, oval, square, triangular, among others) and locations on base upper surface **4**. Further assisting in preventing or inhibiting empty or loaded beverage container **200** from sliding off base upper surface **4** are ledges **26***a, b*, which can be more readily seen in FIGS. **3** and **5**. Ledges **26***a, b* rise above upper surface **4** over left and right side walls **24**, **22**, respectively, and are semi-circular in shape with a radius in the range of about 0.120" to about 0.6", according to an exemplary embodiment of the present invention. According to a more preferred embodiment of the present invention, ledges **26***a, b* are semi-circular in shape with a radius of about 0.5". Of course, as those of ordinary skill in the art of the present invention can appreciate, ledges **26***a, b* can be of many different shapes, and still function to assist in retaining beverage trays **200** from slipping off of upper surface **4** of base **2** of pallet **100**. For example, ledges **26***a, b* can be elliptical, triangular, square or rectangular, among other shapes.

3. Handles **12**, **14** and **16**.

As shown in FIGS. **2-7**, pallet **100** comprises a plurality of handles that provide an ergonomic means for retrieving pallet **100**. Referring especially to FIGS. **2-4**, handle grip areas **28***a, b* include handles **12***a, b* that are located along the central longitudinal axis A-A. Handles **12***a, b* include inner finger recess areas **60***a, b*, and outer finger recess area **61***a, b*. Inner finger recess area **60***a, b*, is substantially similar to outer finger recess area **60***a, b*, which is discussed in detail below, and therefore will not be discussed in detail nor is it displayed in the accompanying drawings. As shown in FIGS. **2** and **3**, inner finger recess areas **60***a, b* are located at inner walls **64***a, b* that are parallel to left side wall **24** and right side wall **22** respectively. Finger recess areas **60***a, b* comprise a plurality of inner finger recesses **62** that are slight indentations in the inner wall **64***a, b* within which a user's fingers would comfortably fit. Finger recess **62** provide an ergonomic means for a user to grab and lift pallet **100**, especially if it is loaded.

Outer finger recess areas **61***a, b*, comprise handle finger recesses **42** and handle strengthening ribs **44**. Outer finger recess areas **61***a, b* are respectively located on left side wall **24** and right side wall **22**. Handle finger recesses **42** (see FIG. **4**) are designed to allow a user's finger to fit into when lifting pallet **100**. This could occur, for example, if a user lifts pallet **100** with their right hand only while alongside right side wall **22**. Separating handle finger recesses **42** are a plurality of handle strengthening ribs **44** that provide additional material to handles areas **28***a, b* to strengthen and stiffen base **2** in those particular locations, thereby substantially preventing or reducing the amount of bending that might other wise occur when lifting pallet **100** when loaded with beverage containers **200**. According to a preferred embodiment of the present invention, pallet **100** does not include inner finger recess areas **60***a, b*.

Also shown in FIGS. **5-7** are front handles **14***a, b*, and rear handles **16***a, b*. Although not shown in FIGS. **5-7**, any one, combination, or all of front handles **14***a, b* and rear handles **16***a, b* can also employ finger recess areas **62** and/or handle strengthening ribs **44** as well as inner finger recess areas **60***a, b*. Front handles **14***a, b* are substantially symmetrically located about orthogonal central axis B-B (as shown in FIG. **2**), as are rear handles **16***a, b*. Front handles **14***a, b* and rear handles **16***a, b* provide additional means for lifting pallet **100**.

4. Perimeter Ribs **36** and Central Ribs **38**.

In regard to perimeter ribs **36** and central ribs **38**, attention is directed to FIGS. **5-7**, **9** and **10**. FIG. **5** illustrates a top view of the pallet shown in FIG. **2**, FIG. **6** illustrates a bottom view of the pallet shown in FIG. **2**, FIG. **7** illustrates a bottom isometric view of the pallet shown in FIG. **2**, FIG. **9** illustrates a partial front view along line A-A of the pallet shown in FIG. **5**, and FIG. **10** illustrates a partial right side view along line B-B of the pallet shown in FIG. **5**. Perimeter ribs **36** provide substantial strength and stiffness to pallet **100**, without using too much additional plastic material. According to a preferred embodiment of the present invention, as shown in FIGS. **6**, **7**, **9**, and **10**, perimeter ribs **36** do not extend downward from base lower surface **6** as much as central ribs **38** or V-ribs **40** (i.e., perimeter ribs **38** are not as "tall" or "deep" as central ribs **38** and V-ribs **40**). Perimeter ribs are about 50% to 75% of the height of central ribs **38** and V-ribs **40**. According to a preferred embodiment of the present invention, perimeter ribs **35** are 67% of the height of central ribs **38** and V-ribs **40**. According to a preferred embodiment of the present invention, perimeter ribs **3**B are about 2.27" high, and central ribs **38** and V-ribs **40** (at the bottom of the "V" shape) are about 3.02" high.

5. V-Ribs **40**.

Referring now to FIGS. **5-7**, and **10**, V-ribs **40** are shown disposed along the central longitudinal axis A-A and joining together outer and inner stacking feet **8***a-d*, and **10***a, b*. At their center, V-ribs **40** are substantially the same height or depth as central ribs **38**. From their center, V-ribs **40** form a "V" shape and rise up and meet stacking feet walls **32** of outer and inner stacking feet **8***a-d*, and **10***a, b*. According to an exemplary embodiment of the present invention, angle Φ, formed between the two walls of V-rib **40** that rise up stacking walls **32**, is between about 80° and about 100°. According to a preferred embodiment of the present invention, angle Φ is about 90°.

V-ribs **40** provide additional load bearing strength to pallet **100** by substantially preventing stacking feet **8***a-d* and **10***a, b* from spreading when filled beverage trays **200** are loaded onto pallet **100**. According to exemplary embodiments of the present invention, pallets **100** can be loaded with as many as 45 beverage trays **200***a* or 20 beverage trays **200***b*. Beverage trays **200***a* generally contain about twenty-four beverage cans **300***a* each, and beverage trays **200***b* contain about eight 2-liter beverage bottles **300***b* each, as shown in FIG. **17**. Beverage cans **300***a* weigh about 12 oz each, while beverage bottles

300*b* weight about 67.6 oz each. When fully loaded, therefore, pallet **100** can support between about 700 and 1,000 lbs. As one of ordinary skill in the art can appreciate, stacking feet **8***a-d* and **10***a, b* therefore must support between about 117 lbs each to about 167 lbs each. Supporting about 167 lbs. each can cause premature failure of pallet **100** by spreading outer and inner stacking feet **8***a-d* and **10***a, b*. Referring to FIG. **10**, "spreading" means that if a sufficient force F were applied to upper surface **6** of pallet **100**, the force transferred to each stacking foot **8***b, c* (approximately F/6 according to an exemplary embodiment of the present invention, presuming an even distribution of force F along upper surface **6** of base **2** of pallet **100**) would cause the distance l between outer stacking feet **8***c, d* to increase. A sufficiently high force F can also cause stacking feet **8***c, d* to twist, or move parallel to the central longitudinal axis A-A.Regardless of the direction of movement, such movement, over repeated cycles of loading and unloading can cause immediate catastrophic failure if the force F is too high, or eventual catastrophic failure over repeated cycles of flexing of the plastic material.

The combined weight of the loaded beverage bottles **300** is transferred to stacking feet **8***a-d*, and **10***a, b*, which can cause them to spread apart from each other. V-ribs **40** substantially prevents stacking feet **8***a* from spreading apart from stacking foot **8***d*, stacking feet **8***b* from spreading apart from stacking foot **8***b*, and stacking feet **10***a* from spreading apart from stacking foot **10***b*, by transferring the weight or force that is imparted upon the stacking foot from a compressive force (the foot upon the ground) into a tensile force borne by the V-rib. The design of V-rib **40** ultimately determines how much tensile force it can withstand. Design parameters of V-rib **40** include the amount of material or volume of material used, (according to a preferred embodiment of the present invention, plastic) first height H_1, distance d, angle θ, and second height H_2. The design of V-rib **40** according to an exemplary embodiment of the present invention substantially maximizes its tensile strength capacity while minimizing the volume of material used for the expected weight of beverage bottles **300** (or other packaged goods) loaded upon pallet **100**.

C. Stacking Feet **8**, **10**

1. General Description.

As discussed above, outer stacking feet **8***a-d* and inner stacking feet **10***a, b* are subjected to significant loads from beverage bottles **300** when loaded on pallet **100**. According to a preferred embodiment of the present invention, there are six stacking feet: four outer stacking feet **8***a-d*, and two inner stacking feet **10***a, d*, though, as one of ordinary skill in the present invention can appreciate, there can be alternative arrangements in the number of stacking feet, as well as their arrangements under base **2** of pallet **100**. Stacking feet **8***a-d* and **10***a, b* each comprise at least four stacking feet walls **32**, which are formed at an angle of about 5° from the perpendicular, as shown in FIG. **10**. Offsetting each stacking feet wall **32** from the perpendicular by about θ° means that each stacking foot **8***a-d*, **10***a, b*, is generally conical in shape, which assists in stacking and de-stacking, as discussed in detail below. Furthermore, each stacking feet **8***a-d* and **10***a, b* comprises stacking feet floor **34**, and within stacking feet floors **34** are formed a plurality of drainage holes **50**.

2. Inner Ribs **54** and Stacking of Pallets **100**.

According to an exemplary embodiment of the present invention, as briefly described above, pallets **100** can be stacked upon each other. FIG. **20** illustrates a front side view of upper pallet **100'** stacked upon lower pallet **100** in a 0° stacking orientation according to an embodiment of the present invention, and FIG. **21** illustrates a right side view of pallets **100'**, **100** shown in FIG. **20**. Because of the substantially symmetry of pallet **100**, there is no difference in stacking heights if upper pallet **100'** is stacked upon lower pallet **100** faces the same direction (i.e., front side wall **18'** of upper pallet **100'** faces the same direction as front side wall **18** of lower pallet **100**; the "0° stacking orientation") or if upper pallet **100'** has been rotated 180° (i.e., rear side wall **22'** of upper pallet **100'** faces the same direction as front side wall **18** of lower pallet **100**; the "180 stacking orientation").

Referring to FIGS. **5**, **8**, and **9-12**, stacking feet inner ribs (inner ribs) **54** of stacking feet **8***a-d*, and **10***a, b* can be seen. Inner ribs **54** prevent an upper pallet **100'**, when stacked upon lower pallet **100**, from being wedged in too tightly. If inner ribs **54** were not used, then when upper pallet **100'** was stacked upon lower pallet **100**, upper stacking feet **8***a-d'* and **10***a, b'* of upper pallet **100'** could become wedged into lower stacking feet **8***a-d* and **10***a, b* of lower pallet **100**, thereby preventing easy separation of one pallet **100** from another. The effect of wedging becomes more pronounced when additional upper pallets **100'** are stacked upon lower pallets **100**, and even more so if the stacked pallets **100'**, **100** are tossed about.

Inner ribs **54** extend between about 40% to about 60% of the height of stacking feet **8***a-d*, **10***a, b*. As shown in FIGS. **9** and **10**, according to a preferred embodiment of the present invention, inner ribs **54** extend about 50% of the height of stacking feet **8***a-d*, and **10***a, b*. Therefore, according to a preferred embodiment of the present invention, the nesting ratio of pallet **100** is about 50%. Each stacking foot **8***a-d* and **10***a, b* has four inner ribs that originate from the bottom or stacking foot floor **34**, and extend upwards. When an upper pallet **100'** is stacked upon lower pallet **100**, as shown in FIGS. **11** and **12** (FIG. **11** illustrates a front partial view of an upper pallet **100** nested within a lower similar pallet **100** according to an embodiment of the present invention, wherein the partial view of the upper and lower pallets **100'**, **100** is taken along line C-C of pallet **100** shown in FIG. **5**, and FIG. **12** illustrates a partial side view of an upper pallet **100'** nested within a lower similar pallet **100** according to an embodiment of the present invention, wherein the partial view of the upper and lower pallets **100'**, **100** is taken along line B-B of pallet **100** shown in FIG. **5**), stacking foot floor **34'** of upper pallet **100** rests upon an upper ledge **64** of inner ribs **54** of lower pallet **100**. Note that as shown in FIGS. **11** and **12**, an outer portion of stacking feet walls **32'** of upper pallet **100'** do not come into contact, other than incidentally, with an inner portion of stacking feet walls **32** of lower pallet **100**. The designed height of inner ribs **54** prevents stacking feet **8***a-d'*, **10***a, b'* from entering in too deeply into outer stacking feet recess areas **46***a-d*, and inner stacking feet recess areas **48** of lower pallet **100**. An exemplary embodiment of outer stacking feet recess area **46***b* is shown in FIG. **8**.

In regard specifically to outer stacking feet **8***a-d*, and outer stacking feet recess areas **46***a-d*, and their respective inner ribs **54**, attention is directed towards FIG. **11**, which shows that outer stacking feet **8***a-d* comprise an angled portion **30***a-d* (described in greater detail below) and inner ribs **54** are proportionately adjusted in height for the angled portion **30***a-d*. As shown in FIG. **11**, inner ribs **54***a, b*, formed over angled portion **30***b* of lower pallet **100**, rise to meet angled portion **30***b'* of upper pallet **100'**. The effect of stacking foot **8***b'* of upper pallet **100'** resting on inner ribs **54***a, b* of stacking foot **8***b* of lower pallet **100** is such that should stacked pallets be subjected to some kind of load, upper pallet **100'** would be sufficiently supported by lower pallet **100**, and the weight placed upon upper pallet **100'** would be distributed evenly about lower pallet **100**. If inner ribs **54***a, b* were not designed and implemented as shown, then it would be possible that a

bending moment could be developed at the outer edges of upper pallet **100'**, which, even though of small magnitude, could over time lead to premature failure.

3. Angled Surfaces.

Referring now to FIGS. **3** and **4**, stacking feet angled surface (angled surface) **30** are shown on outer stacking feet **8***a-d*. Angled surface **30** is formed from stacking feet floor **34** at angle β (shown in FIG. **3**) between about 10° and 20°. According to an exemplary embodiment of the present invention, β is preferably about 15°. FIG. **18** and FIG. **19** illustrates the use of angled portion **34**. FIG. **18** illustrates a user delivering pallets **100** loaded with beverage trays **200** and beverage bottles **300** with a pallet jack **400**. To go from first surface **430** to second surface **440**, the user places ramp **420** between the two. Referring now to FIG. **19**, which is a close-up view of stacking foot **8***a*, as front wheel **450** of pallet jack **400** encounters ramp **420**, stacking foot **8***a* is just approaching ramp **420**. If stacking foot **8***a* were shaped to include stacking foot floor **34'**, as the dotted lines indicate, it would hit ramp **420** which would then impede the traversal of ramp **420** by the user. Instead, because of angled surface **30**, stacking foot **8***a* (and **8***d*) do not impede the progress of the ramp of loaded pallet **100**, and the user can easily deliver beverage bottles **300** to the retail location. As those of ordinary skill in the art of the present invention can appreciate, ramp **420** is an industry standard ramp, as is height h_1, and angle of incline α. Angle of incline α is between about 10° and 20°, and according to a preferred embodiment of the present invention, angle of incline α is 15°. First surface **430** is preferably a street surface, and second surface **440** is preferably a sidewalk, or a store floor near an entrance. Angled surface **30**, preferably formed at an angle β of about 15°, is a preferred embodiment because of the parameters of the aforementioned ramp and curb height h_1.

Generally, it will be the case, as shown in the accompanying and just described FIGS. **18** and **19**, that first surface **430** is lower relative to second surface **440** (see FIG. **18**). That is, an operator will transit ramp **420** from the lower parking lot first surface **430** to the higher (relative to first surface **430**) curb second surface **440**. But that will not always be the case. It should be therefore understood by those of ordinary skill in the art of the present invention that angled surfaces **30** on stacking feet **8***a-d* work equally as well as described above if pallet **100** transits ramp **420** from a higher to lower surface. As long as the same approximate dimensions and configurations are observed, in the case when transiting ramp **420** from a higher first surface **430** to a lower second surface **440**, pallet **100** will enable the operator to transit ramp **420** with little or no difficulty.

Also shown in FIG. **18** is height h_2 of loaded pallet **100**. Height h_2 is the minimum height loaded pallet **100** needs to be raised without contacting ramp **420** while being transported from first surface **430** to second surface **440**. As those of ordinary skill in the art can appreciate, the lower height h_2 is, the safer transportation of loaded pallet **100** is because the center of gravity (COG) is lower. According to a preferred embodiment of the present invention, without angled surfaces **30***a-d*, the minimum height of h_2 would be between about 5" to about 6", whereas, because of angled surfaces **30***a-d* of outer stacking feet **8***a-d*, the minimum height h_2 pallet **100** needs to be raised to clear ramp **420** is about 3½", which is a decrease of the COG of about 46%. A decrease in the height of the COG of pallet **100** of about 46% carrying about 1,000 lbs of beverages is a significant safety improvement. Additionally, because the COG of the loaded pallet **100** is lower through use of angled surfaces **30***a-d*, straps which would secure loaded pallet **100** to pallet jack **400**, can be safely omitted.

Furthermore, the preferred angle β of about 15° optimizes the height pallet **100** has to be raised to avoid interference with ramp **420**. If angle β were a significantly greater value, say about 45°, then outer stacking feet **8***a-d* would have to be made significantly larger, and if, as discussed above, angle β were reduced to 0°, then loaded pallet **100** would have to be raised significantly higher than about 3½", raising the COG of the loaded pallet, and necessitating the use of straps to retain the loaded pallet to pallet jack **400**. Use of straps with pallet jack **400** significantly reduces the efficiency of delivery of the beverages, thereby increasing attendant costs.

4. Location of Stacking Feet.

According to a preferred embodiment of the present invention, outer stacking feet **8***a-d* and inner stacking feet **10***a, b*, as shown in FIGS. **2**, **6**, and **7**, are arranged symmetrically about central longitudinal axis A-A and orthogonal axis B-B. That is, according to a preferred embodiment of the present invention, outer stacking foot **8***a* is located opposite outer stacking foot **8***d* across central longitudinal axis A-A along left side wall **24**, and outer stacking foot **8***b* is located opposite outer stacking foot **8***c* across central longitudinal axis A-A along right side wall **20**. Inner stacking feet **10***a* is located opposite inner stacking foot **10***b* across central longitudinal axis A-A, but are centrally located upon orthogonal axis B-B, as shown in FIGS. **2** and **3**.

The location of both inner and outer stacking feet **10***a, b* and **8***a-d* about central longitudinal axis A-A provides an additional benefit in the stability and hence safety of pallet **100**. According to a preferred embodiment of the present invention, outer stacking feet walls **32** of all stacking feet **8***a-d*, **10***a, b*, are defined as those walls of each stacking foot that are closest in proximity to rear side wall **22** for outer stacking feet **8***c, d*, and inner stacking feet **10***b*, and those walls of each stacking foot that is closest in proximity to front side wall **18** for outer stacking feet **8***a, b*, and inner stacking feet **10***a*. According to a preferred embodiment of the present invention, outer stacking foot walls **32** of outer and inner stacking feet **8***a-d*, **10***a, b*, are located a distance d, from their respective closest side walls as shown in FIG. **6**. Distance d, is optimized to allow just enough room for placement of tines **410***a, b* of pallet jack **400** along side outer and inner stacking feet **8***a-d*, **10***a, b*. Placement of tines **410***a, b* of pallet jack **400** outside stacking feet **8***a-d*, **10***a, b* provides a significantly more stable lifting platform than if the tines **410***a, b* were inside the outer and inner stacking feet **8***a-d*, **10***a, b*. As one of ordinary skill in the art can appreciate, locating tines **410***a, b* closer to the central longitudinal axis A-A makes a loaded pallet **100** more unstable.

D. Stacking Feet **508**, **510**

1. General Description.

As discussed above, outer stacking feet **508***a-d* and inner stacking feet **510***a, b* are subjected to significant loads from beverage bottles **300** when loaded on pallet **500**. According to a preferred embodiment of the present invention, there are six stacking feet: four outer stacking feet **508***a-d*, and two inner stacking feet **510***a, d*, though, as one of ordinary skill in the present invention can appreciate, there can be alternative arrangements in the number of stacking feet, as well as their arrangements under base **502** of pallet **500**. Stacking feet **508***a-d* and **510***a, b* each comprise at least four stacking feet walls **532**, which are formed at an angle of about 5° from the perpendicular, as shown in FIG. **24**. Offsetting each stacking feet wall **532** from the perpendicular by about θ° means that each stacking foot **508***a-d*, **510***a, b*, is generally conical in

shape, which assists in stacking and de-stacking, as discussed in detail below. Furthermore, each stacking feet **508***a-d* and **510***a, b* comprises stacking feet floor **534**, and within stacking feet floors **534** are formed a plurality of drainage holes **550**.

Each of inner stacking feet **508** and outer stacking feet **510** comprise two additional features, lower step **568** and upper step **570**. Lower steps **568** provide additional stability to pallet **500** by providing additional stacking feet surface area and width so that a more stable platform is provided for the goods that pallet **500** can carry. Lower steps **568***a, b* are located on outer edges of stacking feet **508** and **510**; if they were located on the inner edges of the stacking feet, they would still provide additional surface area to the stacking feet, but would not provide as wide a stacking platform as is the case with the step on the outer edges. Thus, lower steps **568***a, b* as located optimize the stability of the stacking feet and pallet **500**.

Upper steps **570***a, b* are formed such that when pallet **500'** is stacked upon lower pallet **500**, lower step **568***a, b* has a recess to be located within, as shown in FIG. **28**. According to an exemplary embodiment of the present invention, lower step **568** is formed between about 80% and 100% of the length of each stacking foot. According to a preferred embodiment of the present invention, lower and upper steps **568**, **570** are formed at about 90% of the length of the stacking feet, as shown in greater details in FIGS. **29** and **30**. On the outer stacking feet **508**, lower and upper steps **568**, **570** are formed between about 80% and 100% of the flat portion of the bottom of the outer stacking feet **508**, because located the step of the angled portion would not provide additional or significant stability to pallet **500**. According to a preferred embodiment of the present invention, lower and upper steps **568** and **570** are about 90% in length of the flat portion of the bottom of the outer stacking feet **508**.

Lower and upper steps **568** and **570** are substantially right angled, without the rounded edges as the remaining corner of the bottom of the inner and outer stacking feet **508** and **510**. By making the edges about 90°, the surface area of the stacking feet is maximized across the width of pallet **500**, thereby maximizing the stability of pallet **500**. With steps **568** and **570**, the stability of pallet **500** is substantially enhanced, with very little gain in weight from use of extra plastic.

As discussed in detail supra, all remaining features of pallet **500** are substantially similar to pallet **100**, and so further discussion of these substantially similar features has been omitted for purpose of brevity and clarity.

III. Method of Using Pallet **100** and **500**

According to a further exemplary embodiment of the present invention, the various inventive features described herein provide for an efficient and effective means for transporting pallets **100** and **500** loaded with beverage trays **200** and beverage bottles **300** from a delivery vehicle to a retail location for display and purchase by consumers. Although only pallet **100** is discussed infra in regard to the method of transporting, those of ordinary skill in the art of the present can appreciate that pallets **100** and **500** can be used interchangeably, and thus specific mention of pallet **500** is unnecessary, and has been omitted for purposes of brevity and clarity.

According to an exemplary embodiment of the present invention, the method for transporting beverage trays **200** loaded onto pallet **100** from a delivery vehicle to a retail location begins with the loading of beverage trays **200** onto pallet **100**. FIGS. **12-14** illustrate pallet jack **400** loaded with partially loaded pallet **100** from a left side view, right side view and from isometric view, respectively, according to exemplary embodiments of the present invention. According to an exemplary embodiment of the present invention, pallets **100** are usually filled with beverage bottles **300** at a central warehouse or shipping distribution center (and covered with plastic film (i.e., "shrink-wrapped)), although it may be the case that pallets **100** can also be loaded with beverage bottles **300** directly from the delivery vehicle. Once pallets **100** are loaded with beverage trays **200** that are filled with beverage bottles **300**, pallet jack **400**, comprising a plurality of tines **410***a, b*, is located adjacent the loaded pallet **100**, and tines **410***a, b* are located alongside an outer portion of each of the plurality stacking feet as described above. Loaded pallet **100** is then lifted by pallet jack **400** and transported from the delivery vehicle to first surface **430**. Loaded pallet **100** needs only be lifted to a height h_2 that, according to an exemplary embodiment of the present invention, is about 3½". Further, because loaded pallet **100** is only lifted to height h_2, and not a significantly greater height, straps that are typically used to retain loaded beverage containers to pallet jack **400** do not typically have to be used, although in some circumstances they will be used.

Pallet jack **400** then transports loaded pallet **100** from first surface **430** to second surface **440** using ramp **420**. During the transporting of loaded pallet **100**, pallet **100** traverses ramp **420** inclined at a first angle α from first surface **430** to second surface **440** without substantial impedance as a result of angled surfaces **30***a-d* on outer stacking feet **8***a-d*. Following passage of loaded pallet **100** up ramp **420** to second surface **440**, the user of pallet jack **400** and pallet **100** places loaded pallet **100** into a preferred location in the retail store wherein the user lowers loaded pallet **100** into place, removes pallet jack **400** from under loaded pallet **100**, and consumers can then purchase beverage bottles. According to a further exemplary embodiment of the present invention, the method further comprises wrapping loaded pallet **100** with a shrink wrap material, which substantially prevents displacement of beverage trays **200** and beverage bottles **300** during shipment of the same (especially if previously loaded onto pallet **100** at a distribution center), and the user or retail store owner must then remove the shrink wrap material prior to purchase by consumers. As discussed above, angled surfaces **30***a-d* on outer stacking feet **8***a-d* enable transport of pallet **100** with little or no interference when traversing ramp **420** from a higher first surface **430** to a lower second surface **440**. In this case, however, the angled surfaces **30***a-d* do not interfere with the lower second surface **440** as pallet **400** with pallet **100** transitions from ramp **420** to lower second surface **440**. Furthermore, according to additional exemplary embodiments of the present invention, pallet **100** can be loaded with virtually any type of packaged goods.

The present invention has been described with reference to certain exemplary embodiments thereof. However, it will be readily apparent to those skilled in the art that it is possible to embody the invention in specific forms other than those of the exemplary embodiments described above. This may be done without departing from the spirit and scope of the invention. The exemplary embodiments are merely illustrative and should not be considered restrictive in any way. The scope of the invention is defined by the appended claims and their equivalents, rather than by the preceding description.

All United States patents and applications, foreign patents, and publications discussed above are hereby incorporated herein by reference in their entireties into the detailed description portion of the specification.

What is claimed is:

1. A pallet for use in transporting packaged goods, comprising:

a front side wall, a right side wall, a rear side wall, and a left side wall, the pallet having a central longitudinal axis running from the left side wall to the right side wall;

a base configured to support the packaged goods, the base being joined to each of the front side wall, right side wall, rear side wall, and left side wall such that each side wall is orthogonal to the base,

the base including an upper surface and a lower surface, the upper surface being substantially planar, and the lower surface including a first set of ribs substantially perpendicular and adjacent to the central longitudinal axis of the pallet; and

a plurality of pairs of stacking feet configured to support the base of the pallet, wherein each stacking foot in each pair of stacking feet is substantially equidistant from the central longitudinal axis of the pallet, and further wherein, each rib in the first set of ribs is configured to join a respective pair of stacking feet together to substantially inhibit the respective pair of stacking feet from spreading when the pallet rests upon the stacking feet, and still further wherein each stacking foot further includes:

a lower step, wherein the lower step is located at a lower-most and outer-most portion of said each stacking foot, and wherein the lower step is configured to increase stability of the pallet by providing additional surface area to carry, and to increase a width of the at least one or more stacking feet of the pallet, said lower step having a longitudinal length between about 80 percent and about 100 percent of a longitudinal length of a flat bottom of said each foot; and

an upper step located above said lower step on said outer-most portion of said each stacking foot, and configured to provide further surface area to carry weight, said upper step having a longitudinal length substantially equal to the longitudinal length of said lower step.

2. The pallet according to claim **1**, wherein for each pair of stacking feet, a first stacking foot is located on a first side of the central longitudinal axis, and a second stacking foot is located on a second side of the central longitudinal axis, and wherein, the first stacking foot and the second stacking foot are each located substantially equidistant from the central longitudinal axis of the pallet.

3. The pallet according to claim **1**, wherein the first set of ribs comprises a plurality of substantially V-shaped ribs, wherein each of the substantially V-shaped ribs forms a V-shaped angle.

4. The pallet according to claim **3**, wherein the V-shaped angle formed by each of the substantially V-shaped ribs measures between about 70° and about 110° .

5. The pallet according to claim **3**, wherein the V-shaped angle formed by each of the substantially V-shaped ribs measures between about 80° and about 100° .

6. The pallet according to claim **3**, wherein the V-shaped angle formed by each of the substantially V-shaped ribs measures about 90° .

7. The pallet according to claim **1**, wherein the plurality of pairs of stacking feet comprises three pairs of stacking feet.

8. The pallet according to claim **1**, further comprising:

a plurality of handles configured to enable a user to grasp the pallet, wherein each of the handles is positioned on the base.

9. The pallet according to claim **8**, wherein the plurality of handles comprises:

a left side wall handle located adjacent to the left side wall and wherein the left side wall handle is substantially symmetrically placed about the central longitudinal axis;

a right side wall handle located adjacent to the right side wall and wherein the right side wall handle is substantially symmetrically placed about the central longitudinal axis;

a pair of front side wall handles located adjacent to the front side wall; and

a pair of rear side wall handles located adjacent to the rear side wall, wherein, each handle in each of the pair of front side wall handles and rear side wall handles are located substantially equidistant from an orthogonal longitudinal axis, wherein, the orthogonal longitudinal axis is substantially perpendicular to the central longitudinal axis, and is substantially equidistant from the left side wall and the right side wall.

10. The pallet according to claim **9**, wherein, each of the left side wall handles and the right side wall handles comprises a plurality of handle strengthening ribs configured to strengthen the left side wall and right side wall respectively.

11. The pallet according to claim **9**, wherein each of the left side wall handle and right side wall handle further comprises a plurality of finger recesses located on the left side wall and right side wall, respectively.

12. The pallet according to claim **1**, further comprising:

a left ledge located on the upper surface of the base over the left side wall; and

a right ledge located on the upper surface of the base over the right side wall, wherein, the right ledge and the left ledge are configured to substantially prevent one or more of the packaged goods from sliding off the pallet.

13. The pallet according to claim **12**, wherein each of the left ledge and the right ledge comprises a raised portion of the upper surface of the base in a semi-circular shape with a radius between about 0.120 and about 0.6 inches.

14. The pallet according to claim **13**, wherein each of the left ledge and the right ledge comprises a raised portion of the upper surface of the base in a semi-circular shape with a radius of about 0.5 inches.

15. The pallet according to claim **1**, further comprising the packaged goods which comprise a plurality of beverage trays.

16. The pallet according to claim **15**, wherein each of the plurality of beverage trays is filled with one or more beverage bottles.

17. The pallet according to claim **1**, further comprising:

one or more recesses located on the upper surface of the base; and

a tacky material positioned within the one or more recesses, wherein the tacky material is configured to substantially prevent one or more of the packaged goods from sliding off the pallet.

18. The pallet according to claim **1**, wherein the upper step is located at about halfway between the lower-most portion of the stacking foot and a lower surface of the base of the pallet, and further wherein the upper step is configured to provide a recess area for the lower step when an upper substantially similar pallet is stacked and nested on a lower pallet, such that about 50% of a height of the substantially similar upper pallet is nested within the lower pallet.

19. A pallet for use in transporting packaged goods, comprising:

a front side wall, a right side wall, a rear side wall, and a left side wall, the pallet having a central longitudinal axis running from the left side wall to the right side wall;

a base configured to support the packaged goods, the base being joined to each of the front side wall, right side

wall, rear side wall, and left side wall such that each side wall is orthogonal to the base, the base including an upper surface and a lower surface, the upper surface being substantially planar, and the lower surface including a first set of ribs substantially perpendicular and adjacent to the central longitudinal axis of the pallet; and

a plurality of pairs of stacking feet configured to support the base of the pallet, wherein a first pair of stacking feet are located adjacent the left side wall, a second pair of stacking feet are located adjacent the right side wall, and a third pair of stacking feet are located between the first pair of stacking feet and second pair of stacking feet, and wherein each of the stacking feet in the first pair of stacking feet includes a substantially horizontal floor portion and an angled portion originating from the substantially horizontal floor portion, and wherein, the angled portion is formed at an angle in the range of about 5° to about 20° with respect to a plane of the substantially horizontal portion of the first pair of stacking feet, such that a plane of the angled portion of the first pair of stacking feet intersects a plane of the base of the pallet, and further wherein each of the stacking feet in the second pair of stacking feet includes a substantially horizontal floor portion and an angled portion originating from the substantially horizontal floor portion, wherein, the angled portion is formed at an angle in the range of about 10° to about 20° with respect to a plane of the substantially horizontal portion of the second pair of stacking feet, such that a plane of the angled portion of the second pair of stacking feet intersects a plane of the base of the pallet, and further wherein, the angled portions of each of the first pair of stacking feet and second stacking feet are configured to enable the pallet to be transported over an inclined ramp without substantially interfering with the inclined ramp, and still further wherein each stacking foot further includes:

a lower step, wherein the lower step is located at a lowermost and outer-most portion of said each stacking foot, and wherein the lower step is configured to increase stability of the pallet by providing additional surface area to carry weight, and to increase a width of the at least one or more stacking feet of the pallet, said lower step having a longitudinal length between about 80 percent and about 100 percent of a longitudinal length of a flat bottom of said each foot; and

an upper step located above said lower step on said outermost portion of said each stacking foot, and configured to provide further surface area to carry weight, said upper step having a longitudinal length substantially equal to the longitudinal length of said lower step.

20. The pallet according to claim **19**, wherein the angled portion of both the first pair of stacking feet and second pair of stacking feet is formed at an angle of about 15° .

21. The pallet according to claim **19**, further comprising the packaged goods which comprise a plurality of beverage trays.

22. The pallet according to claim **21**, wherein each of the plurality of beverage trays is filled with one or more beverage bottles.

23. The pallet according to claim **19**, further comprising:

a plurality of handles configured to enable a user to grasp the pallet, wherein each of the handles is positioned on the base.

24. The pallet according to claim **23**, wherein the plurality of handles comprises:

a left side wall handle located adjacent to the left side wall and wherein the left side wall handle is substantially symmetrically placed about the central longitudinal axis;

a right side wall handle located adjacent to the right side wall and wherein the right side wall handle is substantially symmetrically placed about the central longitudinal axis;

a pair of front side wall handles located adjacent to the front side wall; and

a pair of rear side wall handles located adjacent to the rear side wall, wherein, each handle in each of the pair of front side wall handles and rear side wall handles are located substantially equidistant from an orthogonal longitudinal axis, wherein, the orthogonal longitudinal axis is substantially perpendicular to the central longitudinal axis, and is substantially equidistant from the left side wall and the right side wall.

25. The pallet according to claim **24**, wherein, each of the left side wall handles and the right side wall handles comprises a plurality of handle strengthening ribs configured to strengthen the left side wall and right side wall respectively.

26. The pallet according to claim **24**, wherein each of the left side wall handle and right side wall handle further comprises a plurality of finger recesses located on the left side wall and right side wall, respectively.

27. The pallet according to claim **19**, further comprising:

a left ledge located on the upper surface of the base over the left side wall; and

a right ledge located on the upper surface of the base over the right side wall, wherein, the right ledge and the left ledge are configured to substantially prevent one or more of the packaged goods from sliding off the pallet.

28. The pallet according to claim **27**, wherein each of the left ledge and the right ledge comprises a raised portion of the upper surface of the base in a semi-circular shape with a radius between about 0.120 and about 0.6 inches.

29. The pallet according to claim **27**, wherein each of the left ledge and the right ledge comprises a raised portion of the upper surface of the base in a semi-circular shape with a radius of about 0.5 inches.

30. The pallet according to claim **19**, further comprising the packaged goods which comprise a plurality of beverage trays.

31. The pallet according to claim **30**, wherein each of the plurality of beverage trays is filled with one or more beverage bottles.

32. The pallet according to claim **19**, further comprising:

one or more recesses located on the upper surface of the base; and

a tacky material positioned within the one or more recesses, wherein the tacky material is configured to substantially prevent one or more of the packaged goods from sliding off the pallet.

33. The pallet according to claim **19**, further comprising a substantially identical upper pallet, and wherein each stacking foot in each pair of stacking feet of each pallet comprises:

an interior portion configured to accept a corresponding stacking foot from the upper pallet, when the upper pallet is stacked upon said pallet, and wherein the interior portion comprises a plurality of ribs configured to substantially prevent the corresponding stacking foot from the upper pallet from becoming wedged into the interior portions of each corresponding stacking foot of said pallet, and further wherein, the ribs in the first pair of stacking feet and the second pair of stacking feet substantially support the substantially horizontal floor portion and the angled portion of each of the correspond-

ing stacking feet of the upper pallet, such that bending of the upper pallet is substantially prevented about the first pair of stacking feet and second pair of stacking feet of the upper pallet, thereby substantially preventing premature failure of the upper pallet.

34. The pallet according to claim **19**, wherein the upper step is located at about halfway between the lower-most portion of the stacking foot and a lower surface of the base of the pallet, and further wherein the upper step is configured to provide a recess area for the lower step when an upper substantially similar pallet is stacked and nested on a lower pallet, such that about 50% of a height of the substantially similar upper pallet is nested within the lower pallet.

35. A pallet for use in transporting packaged goods, comprising:

a front side wall, a right side wall, a rear side wall, and a left side wall, the pallet having a central longitudinal axis running from the left side wall to the right side wall;

a base configured to support the packaged goods, the base being joined to each of the front side wall, right side wall, rear side wall, and left side wall such that each side wall is orthogonal to the base, the base including an upper surface and a lower surface, the upper surface being substantially planar, and the lower surface including a first set of ribs substantially perpendicular and adjacent to the central longitudinal axis of the pallet; and

a plurality of pairs of stacking feet configured to support the base of the pallet, wherein each stacking foot in each pair of stacking feet is substantially equidistant from the central longitudinal axis of the pallet, thereby forming a set of front side wall stacking feet and a set of rear side wall stacking feet, and still further wherein each stacking foot further includes:

a lower step, wherein the lower step is located at a lower-most and outer-most portion of said each stacking foot, and wherein the lower step is configured to increase stability of the pallet by providing additional surface area to carry weight, and to increase a width of the said each stacking foot of the pallet, said lower step having a longitudinal length between about 80 percent and about 100 percent of a longitudinal length of a flat bottom of said each foot; and

an upper step located above said lower step on said outer-most portion of said each stacking foot, and configured to provide further surface area to carry weight, said upper step having a longitudinal length substantially equal to the longitudinal length of said lower step, and further wherein,

the set of front side wall stacking feet are located at a predetermined distance from the front side wall, and the set of rear side wall stacking feet are located at a predetermined distance from the rear side wall, such that a first tine from a lifting device can be located adjacent the set of front side wall stacking feet, and a second tine from a lifting device can be located adjacent the set of rear side wall stacking feet, such that each of the first tine and the second tine is substantially parallel to the central longitudinal axis of the pallet, thereby further enabling the pallet to be lifted by the first and second tines.

36. The pallet according to claim **35**, wherein the front and rear side wall stacking feet are configured to, when the pallet is lifted, enable the pallet to be transported with substantial stability when loaded with the packaged goods.

37. The pallet according to claim **35**, further comprising a plurality of handles configured to enable a user to grasp the pallet, wherein each of the handles is positioned on the base.

38. The pallet according to claim **37**, wherein the plurality of handles comprises:

a left side wall handle located adjacent to the left side wall and wherein the left side wall handle is substantially symmetrically placed about the central longitudinal axis;

a right side wall handle located adjacent to the right side wall and wherein the right side wall handle is substantially symmetrically placed about the central longitudinal axis;

a pair of front side wall handles located adjacent to the front side wall; and

a pair of rear side wall handles located adjacent to the rear side wall, wherein, each handle in each of the pair of front side wall handles and rear side wall handles are located substantially equidistant from an orthogonal longitudinal axis, wherein, the orthogonal longitudinal axis is substantially perpendicular to the central longitudinal axis, and is substantially equidistant from the left side wall and the right side wall.

39. The pallet according to claim **38**, wherein, each of the left side wall handles and the right side wall handles comprises a plurality of handle strengthening ribs configured to strengthen the left side wall and right side wall respectively.

40. The pallet according to claim **39**, wherein each of the left side wall handle and right side wall handle further comprises a plurality of finger recesses located on the left side wall and right side wall, respectively.

41. The pallet according to claim **35**, further comprising:

a left ledge located on the upper surface of the base over the left side wall; and

a right ledge located on the upper surface of the base over the right side wall, wherein, the right ledge and the left ledge are configured to substantially prevent one or more of the packaged goods from sliding off the pallet.

42. The pallet according to claim **41**, wherein each of the left ledge and the right ledge comprises a raised portion of the upper surface of the base in a semi-circular shape with a radius between about 0.120 and about 0.6 inches.

43. The pallet according to claim **42**, wherein each of the left ledge and the right ledge comprises a raised portion of the upper surface of the base in a semi-circular shape with a radius of about 0.5 inches.

44. The pallet according to claim **35**, further comprising the packaged goods which comprise a plurality of beverage trays.

45. The pallet according to claim **42**, wherein each of the plurality of beverage trays is filled with one or more beverage bottles.

46. The pallet according to claim **35**, further comprising:

one or more recesses located on the upper surface of the base; and

a tacky material positioned within the one or more recesses, wherein the tacky material is configured to substantially prevent one or more of the packaged goods from sliding off the pallet.

47. The pallet according to claim **35**, wherein the upper step is located at about halfway between the lower-most portion of the stacking foot and a lower surface of the base of the pallet, and further wherein the upper step is configured to provide a recess area for the lower step when an upper substantially similar pallet is stacked and nested on a lower pallet, such that about 50% of a height of the substantially similar upper pallet is nested within the lower pallet.

48. A pallet for use in transporting packaged goods, comprising:

a front side wall, a right side wall, a rear side wall, and a left side wall, the pallet having a central longitudinal axis running from the left side wall to the right side wall;

a base configured to support the packaged goods, the base being joined to each of the front side wall, right side wall, rear side wall, and left side wall such that each side wall is orthogonal to the base;

a plurality of pairs of stacking feet configured to support the base of the pallet, wherein each stacking foot in each pair of stacking feet is substantially equidistant from the central longitudinal axis of the pallet, and still further wherein each stacking foot further includes:

a lower step, wherein the lower step is located at a lower-most and outer-most portion of said each stacking foot, and wherein the lower step is configured to increase stability of the pallet by providing additional surface area to carry weight of packaged goods, and to increase a width of said each stacking foot of the pallet, said lower step having a longitudinal length between about 80 percent and about 100 percent of a longitudinal length of a flat bottom of said each foot; and

an upper step located above said lower step on said outer-most portion of said each stacking foot, and configured to provide further surface area to carry weight, said upper step having a longitudinal length substantially equal to the longitudinal length of said lower step, and further wherein,

the base including an upper surface and a lower surface, the upper surface being substantially planar, and the lower surface including:

a first set of ribs substantially perpendicular and adjacent to the central longitudinal axis of the pallet,

a second set of ribs located within an area defined by an outer perimeter of the plurality of pairs of stacking feet but not where the first set of ribs are located, and

a third set of ribs located outside the area of the first and second set of ribs, wherein each of the ribs of the first and second set of ribs are taller than each of the ribs of the third set of ribs.

49. The pallet according to claim **48**, wherein, the each of the ribs of the first and second set of ribs is configured to support more weight than if each of the ribs of the first and second ribs were about the same lower height as the third set of ribs.

50. The pallet according to claim **45**, further comprising a plurality of handles configured to enable a user to grasp the pallet, wherein each of the handles is positioned on the base.

51. The pallet according to claim **50**, wherein the plurality of handles comprises:

a left side wall handle located adjacent to the left side wall and wherein the left side wall handle is substantially symmetrically placed about the central longitudinal axis;

a right side wall handle located adjacent to the right side wall and wherein the right side wall handle is substantially symmetrically placed about the central longitudinal axis;

a pair of front side wall handles located adjacent to the front side wall; and

a pair of rear side wall handles located adjacent to the rear side wall, wherein each handle in each of the pair of front side wall handles and rear side wall handles are located substantially equidistant from an orthogonal longitudinal axis, wherein the orthogonal longitudinal axis is substantially perpendicular to the central longitudinal axis, and is substantially equidistant from the left side wall and the right side wall.

52. The pallet according to claim **51**, wherein, each of the left side wall handles and the right side wall handles comprises a plurality of handle strengthening ribs configured to strengthen the left side wall and right side wall respectively.

53. The pallet according to claim **51**, wherein each of the left side wall handle and right side wall handle further comprises a plurality of finger recesses located on the left side wall and right side wall, respectively.

54. The pallet according to claim **48**, further comprising:

a left ledge located on the upper surface of the base over the left side wall; and

a right ledge located on the upper surface of the base over the right side wall, wherein, the right ledge and the left ledge are configured to substantially prevent one or more of the packaged goods from sliding off the pallet.

55. The pallet according to claim **54**, wherein each of the left ledge and the right ledge comprises a raised portion of the upper surface of the base in a semi-circular shape with a radius between about 0.120 and about 0.6 inches.

56. The pallet according to claim **52**, wherein each of the left ledge and the right ledge comprises a raised portion of the upper surface of the base in a semi-circular shape with a radius of about 0.5 inches.

57. The pallet according to claim **45**, further comprising the packaged goods which comprise a plurality of beverage trays.

58. The pallet according to claim **54**, wherein each of the plurality of beverage trays is filled with one or more beverage bottles.

59. The pallet according to claim **45**, wherein the upper step is located at about halfway between the lower-most portion of the stacking foot and a lower surface of the base of the pallet, and further wherein the upper step is configured to provide a recess area for the lower step when an upper substantially similar pallet is stacked and nested on a lower pallet, such that about 50% of a height of the substantially similar upper pallet is nested within the lower pallet.

60. A method for transporting packaged goods on a pallet from a first location to a second location, the pallet comprising (i) a base including an upper surface and a lower surface, (ii) a front side wall, a right side wall, a rear side wall, and a left side wall, (iii) a plurality of handles, and (iv) a plurality of stacking feet, the pallet having a central longitudinal axis running between the left side wall and the right side wall, and wherein each of the plurality of stacking feet is substantially equidistant from the central longitudinal axis, and wherein the plurality of stacking feet includes (iva) a first pair of stacking feet located adjacent to the left side wall of the pallet, and (ivb) a second pair of stacking feet located adjacent the right side wall, and wherein each stacking foot of the first and second pair of stacking feet includes an angled portion, and still further wherein said each stacking foot includes a lower step located at a lower-most and outer-most portion of said each stacking foot, and wherein the lower step is configured to increase stability of the pallet by providing additional surface area to carry weight, and to increase a width of said each stacking foot of the pallet, said lower step having a longitudinal length between about 80 percent and about 100 percent of a longitudinal length of a flat bottom of said each foot; and an upper step located above said lower step on said outermost portion of said each stacking foot, and configured to provide further surface area to carry weight, said upper step having a longitudinal length substantially equal to the longitudinal length of said lower step, the method comprising:

loading the packaged goods onto the pallet;

positioning a first tine of a lifting mechanism adjacent to the left side wall and substantially parallel to the central longitudinal axis and positioning a second tine of a lift-

ing mechanism adjacent to the right side wall and substantially parallel to the central longitudinal axis;

lifting the loaded pallet using the lifting mechanism; and

transporting the lifted loaded pallet from a first area to a second area by traversing an inclined ramp between the first and second areas, wherein the angled portions of the respective stacking feet enable the pallet to traverse the ramp in a substantially unimpeded manner.

61. The method according to claim **60**, wherein the first area comprises a parking lot and the second area comprises one of a sidewalk and an interior floor of a retail store.

62. The method according to claim **60**, wherein the step of positioning further comprises:

positioning the first tine of the lifting mechanism adjacent to an outer wall of each of the plurality of stacking feet located adjacent to the left side wall; and

positioning the second tine of the lifting mechanism adjacent to an outer wall of each of the plurality of stacking feet located adjacent to the right side wall.

63. The method according to claim **60**, wherein the step of loading further comprises wrapping a material around the loaded pallet such that the pallet and the packed goods are held substantially together by the wrapped material.

64. The method according to claim **63**, wherein the wrapping material comprises a plastic material that shrinks when exposed to elevated temperatures.

65. The method according to claim **60**, further comprising strapping the packaged goods loaded onto the pallet with a strap that is attached to the pallet jack.

66. The method according to claim **65** wherein the strap comprises a retractable strap.

67. The method according to claim **60**, wherein the upper step is located at about halfway between the lower-most portion of the stacking foot and a lower surface of the base of the pallet, and further wherein the upper step is configured to provide a recess area for the lower step when an upper substantially similar pallet is stacked and nested on a lower pallet, such that about 50% of a height of the substantially similar upper pallet is nested within the lower pallet.

68. A pallet for use in transporting packaged goods, comprising:

a front side wall, a right side wall, a rear side wall, and a left side wall, the pallet having a central longitudinal axis running from the left side wall to the right side wall;

a base configured to hold the packaged goods, the base being joined to each of the front side wall, right side wall, rear side wall, and left side wall such that each side wall is orthogonal to the base, the base including an upper surface and a lower surface, the upper surface being substantially planar, and the lower surface including a first set of ribs substantially perpendicular and adjacent to the central longitudinal axis of the pallet; and

a plurality of pairs of stacking feet configured to support the base of the pallet, wherein each stacking foot in each pair of stacking feet is substantially equidistant from the central longitudinal axis of the pallet, and still further wherein said each stacking foot further includes:

a lower step, wherein the lower step is located at a lower-most and outer-most portion of said each stacking foot, and wherein the lower step is configured to increase stability of the pallet by providing additional surface area to carry weight, and to increase a width of said each stacking foot of the pallet, said lower step having a longitudinal length between about 80 percent and about 100 percent of a longitudinal length of a flat bottom of said each foot; and

an upper step located above said lower step on said outer-most portion of said each stacking foot, and configured to provide further surface area to carry weight, said upper step having a longitudinal length substantially equal to the longitudinal length of said lower step, and further wherein each rib in the first set of ribs is configured to join a respective pair of stacking feet together to substantially inhibit the respective pair of stacking feet from spreading when the pallet rests upon the stacking feet.

69. The pallet according to claim **68**, wherein the upper step is located at about halfway between the lower-most portion of the stacking foot and a lower surface of the base of the pallet, and further wherein the upper step is configured to provide a recess area for the lower step when an upper substantially similar pallet is stacked and nested on a lower pallet, such that about 50% of a height of the substantially similar upper pallet is nested within the lower pallet.

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